EFFECTIVENESS OF PLANNED TEACHING PROGRAME ON KNOWLEDGE AND PRACTICE REGARDING SAFE MEDICATION ADMINISTRATION AMONG STAFF NURSES

Dissertation Submitted To

THE TAMILNADU DR.M.G.R.MEDICALUNIVERSITY CHENNAI

IN PARTIAL FULFILLMENT OF REQUIREMENT FOR THE AWARD OF DEGREE OF

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A STUDY TO ASSESS THE EFFECTIVENESS OF PLANNED TEACHING PROGRAMME ON KNOWLEDGE AND PRACTICE REGARDING SAFE MEDICATION ADMINISTRATION AMONGSTAFF NURSES WORKING IN SELECTED HOSPITAL AT CHENNAI

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ABSTRACT

Safe medication administration is an important and potentially challenging nursing responsibility. Medication administration helps to promote the health and prevent the disease of the patient. Nurses should follow the guideline principles while administering medication to the patient to prevent medication error. Medication errors as any preventable event that may cause inappropriate medication use and patient safety. The nurses should follow the three checks and follow the rights and be sure to document the procedure.

A study was conducted to assess the effectiveness of planned teaching programme on knowledge and practice regarding safe medication administration among staff nurses working in selected hospital at Chennai. The hypothesis of this study was there is a significant association between the planned teaching programme with knowledge and practice regarding safe medication administration among staff nurses. Extensive review of literature facilitates the investigator to collect the relevant information of facts to support the study. The conceptual framework of this study was based on modified model of Ernestine Widenbach's helping art of clinical nursing theory.

The study was conducted by adopting a pre experimental one group pre test post test design. Thirty staff nurses who fulfilled the inclusion criteria were selected by purposive sampling technique. Each day the investigator collected data from 4-5 staff nurses to assess the level of knowledge and practice regarding safe medication administration. A structured questionnaire was distributed to the staff nurses to assess the pretest level of knowledge and practice regarding safe medication administration among staff nurses. Then followed by a planned teaching programme regarding safe medication administration and drug calculations were educated to staff nurses. A post test was conducted to assess the level of knowledge and practice with the same questionnaire provided in the pre test.

Analysis revealed that the paired't' test value of knowledge was 20.13 highly significant at the level of $p<0.001$. Thus it indicates the effectiveness of planned

teaching programme and level of knowledge regarding safe medication administration among staff nurses. Analysis revealed that the paired 't' test value of practice was 22.10 highly significant at the level of $p<0.001$. Thus it indicates the effectiveness of planned teaching programme and level of practice regarding safe medication administration among staff nurses.

The correlation coefficient of posttest level knowledge and practice was 1.002, it reveals there is positive correlation. It indicates the effectiveness of planned teaching programme on increasing the level of knowledge and practice regarding safe medication administration.

Introduction

Review of Literature

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Data Analysis and Interpretation

Discussion

Summary, Conclusion, Nursing Implications, Recommendations& Limitations

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CHAPTER I

INTRODUCTION

"THE ERROR OF ONE MOMENT BECOMES THE SORROW OF WHOLE LIFE"

- CHINESE PROVERB

Safety is a concern in many professions, including health care. It has been estimated that between 44,000 to 98,000 people die each year due to medical errors that could have been prevented. Preventing medical errors and promoting patient safety and quality is currently a focus of many organizations, including the Institute of Medicine (IOM) and the Joint Commission. Patient safety is also a concern in nursing education. It has taken several actions to convey the importance of promoting safe, quality care and has defined specific standards, or competencies, for nursing education.

The medication administration process is an everyday part of nursing practice, and is so much more than a simple psychomotor task. Although nurses have the central role in this process, it involves a multidisciplinary team that also consists of the physician, pharmacist and patient. In the acute care setting of a hospital the medication process is complex and time-consuming, occupying up to one-third of the nurses. Medication administration is often carried out under chaotic and stressful circumstances and is probably the highest risk activity a nurse performs. An error in the medication process can be minor or lead to devastating effects for the patient and also for the nurses' career.

Medication administration is a complex multistep process that encompasses prescribing, transcribing, dispensing, and administering drugs and monitoring patient response. An error can happen at any step. Although many errors arise at the prescribing stage, some are intercepted by pharmacists, nurses, or other staff.

Drugs are defined as “a substance intended for use in the diagnosis, cure, mitigation, treatment or prevention of disease, a substance (other than food) intended to affect the structure or any function of the body; and a substance intended for use as a component of a medicine but not a device or a component, part or accessory of a device”.

A drug is any substance or product that is used or indended to be used to modify or explore physiological systems or the pathological status for the benefit of the recipient. Florence Nightingale, who wrote in 1858 that the goal of nursing is “TO PUT THE PATIENT IN THE BEST CONDITION FOR NATURE TO ACT UPON HIM.” The roles of nurse in the administration of correct medication and dosage by the specified route, using proper technique and taking appropriate precautions were once all that expected from a nurse.

In practice of drug administration, nurses have been trained to practice the five rights of medication administration, namely, the right medication, right dose, right route, right time and right patient but evident suggests that although the five rights ‘provide a useful checking ritual, they focus on the individual nurse’s performance during the final stage of medication administration and do not reflect the responsibility and accountability associated with medication administration or multidisciplinary approaches to medication management.’

Medication errors are one of the most common types of medical errors that occur in healthcare institutions. They further state that morbidity from medication errors results in high financial costs for health care institutions and adversely affects the patient’s quality of life. Medication errors have also been identified as the most common single preventable cause of adverse events (National Medicines Information Centre, 2007)

Medication errors are the number-one error in health care. Safe and accurate medication administration is an important and potentially challenging nursing responsibility. Medication administration requires good decision-making skills and clinical judgment, and the nurse is responsible for ensuring full understanding of medication administration and its implications for patient safety

Health Information and Quality Authority (HIQA) (2009) mention that medication management is one of the major responsibilities of a nurse leader/manager in any health care setting particularly in nursing homes. It is a complex process which involves different phases including prescribing, transcribing, ordering, dispensing, supplying, administering and storing.

Medication transferred in to body tissue in one of three ways: by ingestion and absorption in the digestive tract, by passive transfer to porous tissue such as skin, alveoli and lung by insertion directly into the interior tissue via subcutaneous, intramuscular or intrathecal or intravenous infusion. The central goal of nursing is to enable nurses to provide medications to safely and appropriately by using the route of best suited for administration.

Drug calculation forms are one of the important components of care of sick child. Administration of medication in proper amount is the important nurses responsibility. The ability to perform drug calculation is imperative to patient safety. Drug doses for infant and young children are usually smaller than those given to adult. However there is universally accepted method for calculating a pediatric dose as a fraction of an adult dose. Pediatric dose therefore as commonly on weight of child. Body surface area correlates closely with physiological function such as cardiac output oxygen consumption and caloric requirement over a wide range of age and weight for both sexes. There are many methods for calculating the pediatric drug dosages.

Nurses are in a unique position to assist clients in achieving and maintaining optimal level of health. Nurses understand the challenges of today's healthcare system and embrace the opportunity to use wellness activities to promote health. In an era of cost containment and advanced technology, nurses can be a vital link to the improved health of individuals and society. Nurses are playing the primary role in administration of medications across settings. Nurses can also be involved in both the dispensing and preparation of medications, such as crushing pills and drawing up a measured amount for injections.

NEED FOR THE STUDY

A medication error is any event that could cause or lead to a client receiving inappropriate medication therapy or failing to follow routine procedures such as checking dose calculations, deciphering illegible hand writing or administering medications with which the nurse is unfamiliar.

Medication errors occur in all settings and may or may not cause an adverse drug event. Medications with complex dosing regimens and those given in specialty areas such as intensive care units, emergency departments, diagnostic and interventional areas are associated with increased risk of adverse drug event.

Medication errors that nurses make violate the precept “does no harm” and may cost a human life. A systematic approach to determine the underlying factors in the occurrence of medication errors is required for the safety of both patients and the staff. There are differences in the perceptions of nurses about the causes and reporting of medication errors. All of the potential adverse drug events and approximately two thirds of the actual adverse drug events were judged to be preventable. The basic knowledge and attitude of nurses towards the medication administration have to be identified and confirmed before going into systematic approaches to prevent medication errors.

According to WHO (2015) there are 65.5 % of nurses are making medication error and there are 1 death per day and 1.3 million injuries occur every year. Levinson et.al., did the study in US Medicare patients found that of 111 medication events identified at audit, only 14 (13%) were reported. Importantly, 50% of all medication-related events were estimated to be preventable, clearly identifying the potential to intervene to reduce such errors if they were reported and better understood.

Phillips and colleagues found that deaths in the United states was the most severe adverse drug event associated with medication errors involved central nervous system agents, antineoplastic, and cardiovascular drugs. Most of the common types of errors resulting in patient death involved the wrong dose (40.9

percent), the wrong drug (16 percent), and the wrong route of administration (9.5 percent). The causes of these deaths were categorized as oral and written miscommunication, name confusion (e.g., names that look or sound alike), similar or misleading container labeling, performance or knowledge deficits, and inappropriate packaging or device design. So that the medication administration is very important for current practice in nursing.

Agrawal., P., (2014) reported that according to the statistical analysis of medication error in Delhi, India the occurrence of medication errors and the occurrence of risk factors for medication errors in the inpatient setting of the general hospitals in Delhi. 20 doctors, 30 nurses, 45 pharmacists, 500 patients charts were the population involved in the study. It was recorded that 88 out of the 1063 prescriptions resulted in adverse drug errors, representing 8.2%. This implies that out of every 1000 prescriptions, approximately 82 are likely to result in adverse drug errors in the inpatients and outpatient setting of general hospitals and Clinics in Delhi. These results put the records of occurrence of medication errors in this study very high. The results show that the young age group category (18-30) was at high risk but both males and females were at equal risk.

Medications have available in several names and the nurses need to know the generic and trade name of a medication and be aware of both its therapeutic and side effects. The nurse has an essential role in the prevention of medication error. Nurses administer a wide variety of medications and, new medications are constantly approved for dispension. As a result nurses do not have knowledge about the medication, they are asked to administer. This may mean consulting more expert nurse, pharmacist or medication book.

Today there is an increasing demand for a broader level of knowledge and skills from a nurse. For safe medication administration she/he should be familiar with the source of medication information. Demonstrating the accountability and acting responsibly in professional practice means that the nurse should acknowledges, when error occur in professional practice . Most of the errors that are made by nurses are medication error.

Gurwitz., T. et.al. (2012) stated that nurses have an important role in patient surveillance and error prevention. One of the most common types of adverse event is medication error, which is the most frequent cause of morbidity and preventable death in hospitals. It reported that 38% of medication errors are serious or fatal, and 42% of those are preventable. A recent study in the UK found that 26% of medication errors were potentially grave with fatal events including aspiration pneumonia and intracranial hemorrhage.

The nursing profession is advancing with high standards and specialized knowledge through research and evidence-based practices. Knowledge changes the attitude and develops confidence for practice. The main responsibility of a nurse is the safety of the patient to whom she is giving care. Medication errors are mistakes associated with drugs that are made during the prescription, transcription, and administration phases of drug preparation and distribution. As a result the patient receives a medication incorrectly, and it may become fatal at times. Medication error is one of the major concerns of the nursing professionals internationally.

As the researcher had noticed one medication error done by the staff nurse. The staff nurse administers the inj. Voveran 2ml intravenously instead of giving by intramuscularly. She didn't read the physician order correctly. She didn't follow the rights of medication administration properly. Luckily the patient not got any adverse effects.

Thus, medication administration is an essential part of nursing practice, which requires a sound knowledge base in order for medication to be administered safely. From above findings and studies the investigator found that there is a increasing demand to strengthen the knowledge of nurse's knowledge and practice regarding safe medication administration in prevention of medication error. As the researcher felt that the need to assess the effectiveness of planned teaching programme on knowledge and practice regarding safe medication administration among staff nurses.

STATEMENT OF THE PROBLEM

A study to assess the effectiveness of planned teaching programme on knowledge and practice regarding safe medication administration among staff nurses working in selected hospital at Chennai.

OBJECTIVES OF THE STUDY

1. To assess the pretest knowledge and practice regarding safe medication administration
2. To assess the posttest knowledge and practice regarding safe medication administration
3. To find out the effectiveness of planned teaching programme on knowledge and practice regarding safe medication administration
4. To find the correlation between posttest knowledge and practice regarding safe medication administration
5. To associate the pretest and posttest knowledge and practice regarding safe medication administration with the selected demographic variables of staff nurses

OPERATIONAL DEFINITION

Effectiveness: Refers to the outcome of knowledge and practice regarding safe medication administration among staff nurses.

Planned teaching programme: Refers to an organized group teaching for 30 minutes by lecture cum discussion method to impart knowledge regarding safe medication administration which includes Principles of drug administration, guidelines of drug administration, types of names of drugs, factors contributing medication administration, rights and routes of drug administration, procedures of drug administration, formulas using for drug calculations includes converting the units, tablets and capsule calculations, liquid medication calculations, mg/kg

calculations, drip rate calculations, percentage calculations, microgram/kg/mt calculations and complications of medication error.

Knowledge: Refers to facts, information, and skills acquired through experience or education. The theoretical or practical understanding regarding safe medication administration

Practices: Refers to the actual application and use of an idea, belief, and method, regarding safe administration of medications by using drug calculations.

Safe medication administration: Refers to the safe medication administration is to administer medication without medication error to prevent disease and prolong life.

Staff nurses: Refers to nurses working in the hospital setting who had registered in state nursing council with 1year of clinical experience.

HYPOTHESIS

There is a significant relationship between the planned teaching programme with knowledge and practice regarding safe medication administration among staff nurses.

DELIMITATIONS

The sample is delimited to 30.

The data collection period is delimited to 1 month.

CHAPTER II

REVIEW OF LITERATURE

Review of literature refers to an extensive and systematic examination of publication relevant to the research report. This chapter deals with review of literature related to the problem stated. It has helped the researcher to understand the impact of problem under study. It has also enabled the researcher to design the study to develop the tool and plan for data collection procedure and too analyze the data.

The review of relevant literature is nearly always a standard chapter of the thesis or dissertation. The review forms an important chapter in a thesis where its purpose is to provide the background to and justification for the research undertaken. A literature review is a "critical analysis of a segment of a published body of knowledge through summary, classification and comparison of prior research studies, reviews of literature, and theoretical articles.

PART I: REVIEW OF LITERATURE

Patient safety, specifically safe medication administration and preventing medication errors is an important concern that is added throughout each chapter, and is applicable to practicing nurses and nursing students. Nurses play a major role in reducing medication errors. Nurses frequently administer medications in inpatient healthcare settings, thus they are the last line to safeguard against medication errors as administration is the last part of the medication process.

The literature found and useful has been presented in this chapter in the following components

- literature related to medication error
- literature related to knowledge regarding safe medication administration
- literature related to practice regarding safe medication administration

PART II: CONCEPTUAL FRAMEWORK

PART I

REVIEW OF LITERATURE

The review of literature relevant to this study is presented in the following section.

Literature related to medication error

Gladstone, R., (2016) conducted a cross sectional study to identify the common themes contributing to the occurrence and reporting of medication errors in a district general hospital. The data was collected by self-administered questionnaires to nurses who regularly administered medications. A stratified sample of 102 nurses was selected for the study, with 81 surveys returned for a response rate of 79%. The results showed that over 50% of the medication errors were dose related: 18% were incorrect infusion rates of intravenous fluid (IV), 17% were non-prescribed/extra dose, 11% were incorrect doses, and 6% were omitted doses. The study identified workload, poor skill mix, interruptions, and loss of concentration as factors contributing to the occurrence of reporting medication error.

Hariati, J.A, et.al., (2013) conducted a study to assess the level of knowledge regarding medication errors among nurses working in government hospital Malaysia. A total of 48 respondents completed the questionnaire for respond rate 100%. More than half of the nurses 54% (n= 26) had medium, 46% (n= 22) high, while none had low scores. The most factor which contribute to medication errors were heavy workload and complicated orders 95.8% (n=46), then follow by percentage new staff 81.2 % (n=39) and personal negligence 66% (n=31). They concluded that the respondents' level of knowledge regarding medication was good.

Bayazide, H., et.al., (2012) conducted a descriptive study on medication error reporting Rate and its Barriers and Facilitators among Nurses working in Urmia teaching hospitals. Data was collected using a questionnaire based on Haddon

matrix. This study showed 65.1% of the nurses had made at least four medication error in their career. The results of the study indicate that medication error reporting rate was high. They need educational programme to improve their knowledge.

Brett, L., (2011) conducted a cross-sectional survey utilizing descriptive correlational study to assess the factors contributing to medication error among staff nurses. Convenience sample of 309 nurses were selected. and 288 hospital records of medication error analyzed. The results showed that rate of medication error among nurses was 1.4 times per month (SD = 1.3). The most common factors associated with errors were "Unit staffs do not receive enough in services on new medications" (69.6%, n = 215) and "Poor communication between nurses and physicians" (65.4%, n = 202), while the lowest reported factors were "Physicians change orders frequently" (23.3%, n = 72) and "Physicians' medication orders are not clear" (24.9, n =77). The study concluded that communication, unclear medication orders, workload and medication pancakes were the main factors associate with Medication administration errors.

Mary, J., et.al., (2010) conducted a descriptive study to assess the perception of factors contributing to the medication errors among staff nurses. A survey was mailed to a random sample of 800 registered nurses (RN). The results showed that approximately one fourth of nurses reported they had made at least one error that had resulted in some type of harm to a patient in the past 12 months, while approximately 60% of nurses reported making one or more medication errors that did not cause harm to a patient. The study concluded that there were serious implications for individual staff nurses, nurse administrators, as well as hospital administration and hospital systems in terms of error reduction and patient safety.

Neethu, P., et.al., (2010) conducted a descriptive study to assess the knowledge regarding selected look alike sound alike drugs in prevention of medication error among staff nurses working in selected hospitals at Bangalore. 60 staff nurses were selected for the study. Data was collected by using closed ended questions. The study shows that 30% had adequate knowledge and 70% have

inadequate knowledge. The study concluded that they need adequate educational programme to improve their knowledge.

Hackel, A., & Banister, R., (2008) conducted a study to assess the consequences of a medication error among the urban community hospital with registered and practical nurses. Out of a population of 400 nurses, 146 surveys were returned for a response rate of 36.5%. As part of the study, participants were asked to select what they considered to be medication errors. The ten items included in the tool were all considered to be medication errors taken from a review of current nursing textbooks. The majority of nurses surveyed agreed that wrong medication (97%), wrong time (78%), wrong patient (97%), wrong dose (97%), wrong route (94%), and erroneous omission (88%) constituted medication errors, while a much lower percentage of the same nurses identified assessment of needs (23%), effect not documented (30%), omission not documented (47%), and teaching not documented (27%) as medication errors. It concluded that the study also identified that the hospital did not have guidelines specifying what constitutes a medication error.

Balas, K., & Rogers, A., (2006) conducted a descriptive cross sectional study to assess the nature and prevalence of medication error among the staff nurses working in American nurse association. A random sample of hospital staff nurses was obtained from the ANA membership list. A total of 393 nurses completed the study, for a response rate of 40%. Results showed that 58% of nurses made medication related errors and 59% of nurses made near errors that were medication related over the two week period. Approximately 34% of the actual errors were due to late administration, because of high patient acuity and heavy workloads. Other errors included 24% due to a wrong dose, 17% wrong medication, 16% due to omission of a medication, 8% to the wrong patient, and 2% by the wrong medication route. The study concluded that frequent interruptions and distractions while preparing medications, as well as lack of communication between health care providers as contributing factors in making a medication error.

Hayes, A., et.al., (2004) conducted a prospective study on medication errors arising out of look alike sound alike brand name confusion in general hospital in

Delhi .For the data collection the errors in drug ordering method were analyzed for 6 months, and a list of commonly involved drugs were analyzed for seriousness on the basis of their potential to cause patient harm. The findings indicated that there were 4.5% of look alike sound alike drugs with same generic names, 4.92%of lookalike drugs with different generic names and 0% of sound alike drugs with different generic names, 84.01% of identical brands with same generic name. The study concluded that name confusion was seen in almost all identical brand names for combination drugs and such type of errors could be dangerous for the patients.

Dongmei, L., et.al., (2002) conducted a qualitative study on ethnographic observations and interviews among the role of hospital inpatients in supporting medication safety in two UK hospital organizations. Paper or electronic medication records were shown to patients in only 4 (2%) of 247 cases. However, where they were available during patient-healthcare professional interactions, healthcare professionals often viewed them in order to inform patients about their medicines and answer any questions. Interprofessional discussions about medicines seemed more likely to happen in front of the patient where paper or electronic drug charts were available near the bedside. It shows Patients appear to have more access to paper-based records than electronic equivalents. However, to develop interventions to increase patient involvement with medication safety behaviors, a wider range of factors needs to be considered.

Bryony, D., & Franklin, I., (2000) conducted a qualitative critical incident study to assess the causes of intravenous medication administration errors in hospitals among the staff nurses. A Semi structured interviews were conducted with nurse participants using the critical incident technique, where they were asked to discuss perceived causes of intravenous medication administration errors that they had been directly involved with. In total, 21 intravenous medication administration errors were discussed containing 23 individual active failures which included slips and lapses (n=11), mistakes (n=8) and deliberate violations of policy (n=4). Each active failure was associated with a range of error and violation provoking conditions. He concluded that complex interactions between active and latent failures can lead to intravenous medication administration errors in hospitals. Future

interventions may need to be multimodal in design in order to mitigate these risks and reduce the burden of intravenous medication administration errors.

Johanna, J., (2000) conducted a comparative study at two Australian hospitals of medication errors identified at audit, detected by staff and reported to an incident system. Auditing of 3291 patient records at two hospitals to identify prescribing errors and evidence of their detection by staff. Medication administration errors were identified from a direct observational study of 180 nurses administering 7451 medications. Severity of errors was classified. This demonstrates the inaccuracy of using incident frequency to compare patient risk or quality performance within or across hospitals. New approaches including data mining of electronic clinical information systems are required to support more effective medication error detection and mitigation.

Arash, G., (1999) conducted a descriptive study on perception of causes of medication errors among nurses. The objective of the study was to identify the causes of medication error. Convenient samples of 61 medical surgical nurses were surveyed. The results indicated that 78% of nurses were admitted medication errors. The study concluded that the causes of medication error they perceived were poor handwriting, workload, drug name confusion, look like and sound like medications and lack of knowledge of drugs.

Koustuv, R., & Dalal, K., (1998) conducted a mixed methods study of nurses' medication administration processes and systems. They used a mixed methods ethnographic approach involving observational fieldwork, field notes, participant narratives, photographs, and spaghetti diagrams to identify system factors that facilitate and/or hinder successful medication administration. Overall, 43 nurses on 56 drug rounds were observed. They identified a median of 5.5 interruptions and 9.6 distractions per hour. They identified three interlinked themes that facilitated successful medication administration in some situations but which also acted as barriers in others. They identified practical examples of system effects on work optimization and nurse behaviours that potentially increase medication

safety, and conceptualized ways in which patient involvement can increase medication safety in hospitals.

Literature related to knowledge regarding safe medication administration

Padma, K., et al., (2016) conducted a study to assess the knowledge regarding drug dosage calculation in children among staff nurses and student nurses in narayana medical College hospital, Nellore. Descriptive cross sectional design and convenient sampling technique was followed which included 30 samples were used. Data were collected using structured questionnaire. It showed that with regard to level of knowledge of drug dosage calculation in children among staff nurses 7(46.7%) had inadequate knowledge, 8(53.3%) had moderately adequate knowledge. Among nursing students 8(53.3%) had inadequate knowledge, 6(40%J) had moderately adequate knowledge and 1(6.7%) had adequate knowledge. The study concluded that comparing the level of knowledge between staff nurses and nursing students, nursing students having adequate level of knowledge than staff nurses regarding drug dosage calculation.

Amal, J., et al., (2015) conducted a descriptive correlation study to assess the adequacy of practice of intramuscular injection among staff nurses. A sample consists of 50 staff nurses. The questions were constructed in one form of multiple choices and observational checklist. The statistical analysis says that Chi square was used as a test of significant. Significant was at $p<0.05$ for interpretation of results of tests of significant. Regression analysis test was used to show variables correlation. Correlation was significant at the 0.05. The study concluded that most of nursing staffs had adequate knowledge and skills regarding intramuscular injection.

Enokela, O., (2013) conducted a cross sectional descriptive study to assess the knowledge and practice regarding injection safety among staff nurses. The study administered structured questionnaire to 138 convenience sampling. The statistical significance set at p-value of 0.05. The findings showed that 54.3% of Health workers had good knowledge score of key injection safety issues, while 16.7% and 29.0% had had fair and poor general knowledge scores respectively. About half (50.4%) had fair practice of injection safety. The study concluded that regular and

on the job training programs on core aspect of injection safety among health workers should be conducted by the health departments of Nigerian prison service on regular basis.

Jolly, W., (2013) conducted a study to assess the knowledge and attitude of practicing nurses on medication administration. A questionnaire to assessing knowledge and attitude of the staff towards medication administration was distributed to 170 nurses working in Gulf Medical College Hospital. In the present study, 67.1% possessed the qualification of GNM (explain) and the remaining were graduates. Twenty one questions were asked to elicit the knowledge regarding medication administration. Mean knowledge score was 15.1±2.6 among participants with graduate level education whereas it was 14.2±2.8 for those with GNM as education level. They study concluded that More than 75% of Nurses strongly agrees to the fact that continuous education and up to date information of pharmacology were necessary to safe medication administration.

Kelly, J.G., (2011) conducted a descriptive study to assess the safe medication administration in nursing education among the staff nurses. A survey was developed to identify methods used by nursing faculty members to assess nursing staffs' knowledge and skills of safe medication administration. The specific research questions addressed in the survey. The first three questions of the survey collected demographic information. Of the 239 programs that participated, 47.3% (N=112) identified their program as being a part of an independent institution and 52.7% (N=125) identified their program as being a part of a public institution. The study concluded there is a need for a valid and reliable comprehensive assessment of safe medication administration in order to evaluate whether nursing students have the knowledge, skills and attitude to safely administrate medications.

Vidya, S., (2011) conducted a study to assess the knowledge of nurses about pediatric medicine administration in congenital heart intensive care unit, Trivandrum. Thirty nurses were purposely selected from intensive care unit. A self-prepared validated questionnaire was used in the form of multiple choices to assess the knowledge about pediatric medicine administration. Study showed that nurses

knowledge on pediatric medicine administration is above average (10.69/15). There was no statistically significant difference in the mean knowledge score and age, year of experience. The study concluded that Cardiac nurses in the intensive care unit had above average knowledge about pediatric medicine administration.

Ahmad, R., & Shamsudhin, H., (2010) conducted a descriptive study to assess the knowledge on preparation and administration of intravenous medications among staff nurses. The Survey respondents were (n=246) comprised of head nurses (n=4) and staff nurses (n=242). The results showed that the mean correct scores for knowledge (maximum score 16) of head nurses and staff nurses were 12.5 ± SD 2.1 and 10.3 ± SD 2.6 respectively indicating average knowledge. Less than 50% of respondents obtained correct answers for calculation and dosing of intra venous medications. The study concluded that the training programmes for nurses should give greater emphasis on these skills.

Hajebi, I., et al., (2010) performed a study to determine the knowledge, attitude and practice of nurses towards pharmacovigilance in the taleqani medical teaching and treatment center in Tehran before and after an adverse drug reaction education programme. This study was conducted using a questionnaire through two steps. In every steps 150 questionnaire were distributed in various wards of the Taleqani Hospital. There were less than the knowledge after the seminar (p=0.0001), but there was no significant effect on the attitude (p=0.05). Based on the results of this study, it is necessary to conduct continuous adverse drug reaction educational programme until voluntary monitoring of adverse drug reaction become conventional and habitual among nursing staff.

Nisha, M., (2010) conducted a descriptive study to assess the knowledge of staff nurses regarding nurse's responsibilities in administration of emergency drugs in a selected pediatric hospital in Bengaluru. The sample size consist of 40 staff nurses and structured questinorrie was used for data collection .The results showed that 35% of staff nurses had adequate knowledge and 65% of the staff nurses had inadequate knowledge. The study concluded that a educational programe was needed for the staff nurses working in the hospital**.**

Burke, G., (2009) conducted a descriptive study to develop and test a method for assessing nursing effort and workflow in the medication administration process. The study was conducted with a sample of 151 nurses and 980 unique medication observations in medical-surgical units at a rural hospital, an urban community hospital, and an academic medical center was conducted. The results revealed that nurses averaged more than 15 minutes on each medication pass and were at risk of an interruption or distraction with every medication pass. The study concluded that system challenges faced by nurses during the medication administration process lead to threats to patient safety, work-around, and workflow inefficiencies, and distractions during a time when focus is most needed to prevent error.

Leape, A., et al., (2007) conducted a descriptive study to assess the characteristics of nurses work interruptions during medication administration. The study was conducted with a sample of 102 medication administration rounds. The results revealed that 374 work interruptions were observed over 59 hours 2 minutes of medication administration time. During the preparation phase, nurse colleagues (n= 36; 29.3%) followed by system failures such as missing medication or equipment (n= 28; 22.8%) were the most frequent source of work interruptions. Nurses were interrupted during the preparation phase mostly to solve system failures (n= 33; 26.8%) or for care coordination (n= 30; 24.4%). During the administration phase, the most frequent sources of work interruptions were self-initiation (n= 41; 16.9%) and patients (n= 39; 16.0%). The most frequent secondary task undertaken during the administration phase was direct patient care (n= 105; 43.9%). Work interruptions lasted 1 min 32s on average, and were mostly handled immediately (n= 357; 98.3%). The study concluded that the process of medication administration was not protected against work interruptions, which poses significant risks. Interventions to reduce work interruptions during the medication administration process should target nurses and system failures to maximize medication administration safety.

Lloyd, B., (2006) conducted a cross-sectional study to assess the knowledge on administration of high alert medications among staff nurses working in hospital. Snowball sampling and descriptive statistics were used. A total of 305 nurses

participated, giving a 79.2% response rate (305/385). The correct answer rate for section 1 was 56.5%, and nurses' working experience contributed to scores. Only 3.6% of nurses considered themselves to have sufficient knowledge about high-alert medications, 84.6% hoped to gain more training, and the leading obstacle reported was insufficient knowledge (75.4%). A total of 184 known administration errors were identified, including wrong drug (33.7%) and wrong dose (32.6%) 4.9% (nine cases 9/184) resulted in serious consequences. The study concluded that insufficient knowledge as factor in nurses' drug administration.

Ndosi, N., (2004) conducted a study to assess the knowledge of pharmacology for medications among the staff nurses working in surgical units. The authors report the instrument had evidence of face validity and content validity. Reliability assessment for the pharmacology questionnaire was limited to inter-rater reliability and was determined by calculating the intra-class correlation coefficient (ICC). The average intra class correlation co efficient for the study was 0.726 with p = 0.001. The study concluded that the staff nurse had adequate knowledge about medication administration.

Blais, H., (2000) conducted a study in England on nurses knowledge of pharmacology behind drugs they commonly administer. The participants were 42 nurses working in surgical wards of foundation hospital. Data were collected by structured interview and questionnaire methods. The participants made a blinded selection of 1 out of 4 drugs they commonly administer, and they answered standard questions on specific pharmacy knowledge. The results indicated that out of 10, only 11 nurses scored 8 and majority scored below 7 and mean knowledge score was 6 ranging from 2 to 9, They study concluded that nurses had inadequate knowledge of drugs they commonly administer.

Denise, M., (2000) conducted a descriptive correlation study to assess the mathematical ability of dosage calculations among staff nurses. A convenience sample of registered nurses (n=92) was tested. The results showed that indicated no direct or interactive effects from either variable on the score (F =1.09) the

hypothesis was not supported the study. The study concluded that they require educational program to improve their knowledge.

Hsaio, J., & colleagues., (2000) developed and validated a questionnaire to assess the knowledge of administering high-alert medications among staff nurses from eight categories cardiovascular medications, chemotherapeutic agents, narcotics, opiates, anticoagulants, benzodiazepines, neuromuscular blocking agents and electrolytes. Face validity and content validity were established. Construct validity was established through the contrasted groups approach using registered nurses and nursing students. Internal consistency reliability was established for the pilot with an alpha=0.66 (N=50) and for the study with 305 subjects, the alpha=0.74. Results demonstrated a statistically significant difference in the knowledge scores of participants, and the authors concluded the questionnaire had construct validity.

Literature related to practice regarding safe medication administration

Safaa, M., (2016) conducted a descriptive study to assess the practice of intramuscular injection among undergraduate nursing students. The convenience sample consisted of eighty nursing students (80). The checklist included 27 steps divided into three phases: first phase, preparation (10 items), second phase procedure (14 items) and finally documentation phase (3 items). The highest percent (80%) of nursing students had adequate skills of intramuscular injection as total. While in specific more than seventy (85.82%77.37% &76.25%) of nursing students had adequate skills in documentation, intervention and preparation.

Srividya, B., (2014) conducted a cross sectional study to assess the practice regarding intramuscular injection administration among health care providers. A total of 257 health care providers participated in this study and were asked to practice the steps of intramuscular injection technique. The correctness of technique was graded using a standard checklist of 10 steps. Knowledge was assessed by number of steps followed correctly by them. out of 257 participants knowledge of site selection and sterilization of site for intramuscular injection was good among all the groups (97.7%). steps involving angle of insertion of needle into the muscle, checking whether needle is correctly inserted into muscle, proper disposal of syringe

and sanitization of hand after the procedure was answered correctly by 89.1%, 72.3%, 42.8% and 45.5% of participants respectively. The medical interns and nursing students had responded well, still there was a scope for further improvement in the procedure.

Lily, K., et al., (2013) conducted a pre experimental study to assess the effectiveness of self instructional module on administration of selected emergency drugs for the nursing personnel working in critical care unit. The sample size was 30 nursing personnel working in the critical care unit of B.M Birla Heart Research Centre. A paired t test was computed to find out the difference between the mean pre-test and posttest knowledge score. There was significant difference between the pre-test score and post-test score ($p<0.05$). The study findings revealed that the self instructional module was effective in increasing the knowledge of nursing personnel.

Manisha, C., (2013) conducted a descriptive study to assess the medication administration practices among staff nurses. Samples used were 168 staff nurses. The data was collected by observational checklist. The result shows 68.3% have inadequate practice and 31.7% have moderately adequate practice. The study concluded that they require educational programe to improve their practice.

Branimirka, R., (2012) conducted a cross sectional study to assess the intramuscular injection practices among nursing students and nurses in hospital settings. The sample consisted of 294 respondents out of which (149 were students of final year of the secondary nursing school, and 145 nurses). The data was collected by questionnaire method. The results showed that most respondents, 129 (86.6%) students and 109 (75.1%) nurses withdrew needle immediately after administering the drug. The injection site was not massaged by 95 (63.8%) students and 46 (31.7%) nurses. The study findings showed that positive progress in implementing the procedure, but it was just a beginning.

Janet, J., (2012) conducted a non-experimental descriptive study to assess the practice on intravenous drug preparation and administration among staff nurses in selected hospitals at Bangalore. Simple random sampling used to select 50 staff nurses. The data was collected by observational checklist. The results showed that 30% were adequate practice and 70% were inadequate practice. The study concluded that the staff nurses need planned teaching programe to improve their practice on intravenous administration.

Bobby, P., (2011) conducted a cross sectional observational study on safe injection practices of Nursing Personnel in a Tertiary Care Hospital of Kolkata, West Bengal, India. He took 80 nurses involved in patient care. About 12.5% study subjects washed their hands with soap and water before administering injection. About 60% of the nursing personnel maintained correct procedure during giving injection; while sterile gloves were used only by 3.7% nurses. During disposal of used needles, in 57.5% cases hub cutters were used, while needles were recapped in 42.5% of cases. Used syringes were disposed off correctly in 41.2% of cases. The study concluded that there was a need to educate, train and motivate service providers in proper method of handling injection equipments.

Vaughn, R., & Good, K., (2011) conducted a study to evaluate the effect of an educational programme designed to improve nurse's practice regarding the use of intravenous medications in pediatric intensive care unit (PICU) . The sample size was 21 nurses. The programme consisted of a pre-test ,a pharmacology lecture ,a re-test after seven months followed by a post-test given 13 months after pre-test. The study findings revealed that there was a significant difference between the mean pre-test score (69.5%) and the mean post-test score (87.3%) They concluded that need to improvement in practice of intravenous medications gained through the programme.

Bates, A., et al., (2009) conducted a cross sectional survey to explore the impact of pre-identified contextual themes on nursing medication practice on staff nurses. The study was conducted with a sample size of 278 pediatric nurses from the emergency department, intensive care unit and medical and surgical wards and the response rate was 67%. The study results concluded that organizations need to

employ multidisciplinary education programmes to promote universal understanding of, and adherence to, medication policies.

Catalano, D., (2005) conducted a qualitative study to explore the nurses' attitudes and practice related to medication administration using a focus group methodology. The data was collected from a group of 32 nurses working in eight clinical areas of a tertiary pediatric hospital and the results revealed that four main categories emerged from the data including accessibility of information, time constraints, practice issues and professional conflict. The study concluded that medication administration is a complex area of pediatric nursing practice.

Blais, H., (2004) conducted a study to assess the knowledge and practices of nurses in administration of selected emergency intravenous drugs in critical care units among 45 samples by using questionnaire. The result shows that 45 (100%) samples knew the action of injection Lasix and Aminophylline, 88.88% of samples on Atropine, 71.11% of samples knew on Adrenaline, 46.66% of samples on Nitroglycerine, 44.44% of samples on (Digoxin), 33.33% of samples on Lidocaine, 24.44% of samples on sodium bicarbonate, Nitropruside respectively. The study recommended regular drug training programme to improve the knowledge and practice of nurses.

Rogers, K., (2004) conducted a study to assess the practice of medication ability of registered nurses in western states .The sample size was 110 nurses. The study included the questions on I.V. medications, oral, IM, and subcutaneous drug calculation. The study findings revealed that about 43.6%of nurses scored below 70%.This study suggested accurate strategies which could be used in improving their practice in medication calculation abilities.

Armitage, S., & Knapman, V., (2003) conducted a cross sectional study to assess the practice of high alert medication among staff nurses working in Taiwan hospital. A sample of 305 nurses were selected by using snowball sampling technique .The questionnaire consisted of two sections. The results showed only 3.6% of nurses considered themselves to have sufficient knowledge about high alert medications. Majority of the sample (84.6%) hoped to gain more training, and the

leading obstacle reported was insufficient knowledge (75.4%). A total of 184 known administration errors were identified including wrong drug (33.7%) and wrong dose(32.6%), The study concluded that the result in serious consequences.

Blegan, V., (2001) conducted a descriptive study to assess the knowledge on practice of nurses in the preparation and administration of intravenous medications among 246 samples by using questionnaire. Survey respondents (n=246) comprised head nurses (n=4) and staff nurses (n=242). The results showed that mean correct scores for knowledge (maximum score; 16) of head nurses and staff nurses were 12.5 ± SD 2.1 and 10.3 ± SD 2.6 respectively indicating average knowledge. Less than 50% of respondents obtained correct answers for calculation and dosing of IV medications. Training programmes for nurses should give greater emphasis on these skills.

Pape, L., (2001) conducted a study to find out the effectiveness of drug education programme provided by a pharmacist for practice of drug administration for critical care nurses at the University of Maryland Medical systems Hospital. 8 registered nurses with 8 years of experience was the sample size. This two week programme consisted of a pre-test, six hours class and a post-test. The result of the study revealed that there was a significant difference between the mean pre-test score (38.7±16.1%; range 8.3-58.5%) and the mean post-test score (84.4±12.1%; range 66.7-100%). This study showed that a drug education programme had a positive impact on nurses in improving their knowledge of drugs used in critical care unit.

PART II

CONCEPTUAL FRAMEWORK

The conceptual framework represents a less formal attempt at organizing a Phenomenon. Conceptual models deal with concepts that are used as building blocks and provide a conceptual perspective regarding interrelated phenomena which are closely structured.

This study based on modified model of Ernestine Widenbach's helping art of clinical nursing theory by the year of 1970, which would be relevant to increase the knowledge and practice of safe medication administration among staff nurses. Ernestine Widenbach's proposed a prescriptive theory of nursing which is described as a conceiving of a desired situation of the way to attain it. Prescriptive theories direct action towards an explicit goal. It consists of three factors central purpose, prescription and realization. A nurse develops a prescription based on a central purpose and implement is according to the realities of situation.

Central purpose

In this model central purpose refers to what the investigator wants to accomplish. It is the overall goal towards which a investigator strives it transcends the immediate incent of the assignment or task by specifically directing activities towards the patient safety. The central purpose of this study is to effectiveness of planned teaching programme regarding safe medication administration among staff nurses. The investigator plans the intervention that will fulfill the central purpose by identifying the various mean to achieve the goal.

Identifying the need for help

The investigator must assess or to identifying the needs of the staff nurses before going to give planned teaching programme. In this study the investigator used the following instrument to assess the need of staff nurses. Demographic variables age, sex, educational status, marital status, working unit, number of staffs working

in the ward, number of patient in the ward, nurse patient ratio. Assessment of knowledge and practice by using safe medication administration knowledge scale and safe medication administration practice scale.

Ministering the needed help

It refers to the agent, recipient, and environment involved in nursing action. Agent which denotes to the investigator those who going to educate to the staff nurses. The recipient who means staff nurses. Those who are going to get benefits from the investigator, in this study the recipient is staff nurses who have one year of experiences working in Billroth Hospital.

Means

In this study the investigator had 30 staff nurses. They underwent planned teaching programme.

Validating needed for help

It refers to the effectiveness of planned teaching programme on knowledge and practice regarding safe medication administration. Knowledge scale and practice scale was used to assess the knowledge and practice.

Outcome

It is effect of planned teaching programme. It can be inadequate knowledge, moderately adequate knowledge, adequate knowledge, for level of practice adequate practice, inadequate practice.

Reassessment

It helps to determine the factors involved in inadequate knowledge and inadequate practice of the intervention. The investigator felt that the modified mode of Widenbach's helping art of clinical nursing theory (1970) is applicable for the study. Through which the investigator adopted this theory and explained her study in various aspects based on the components of the theory. All the components are modified and explained based upon intervention of the investigator.

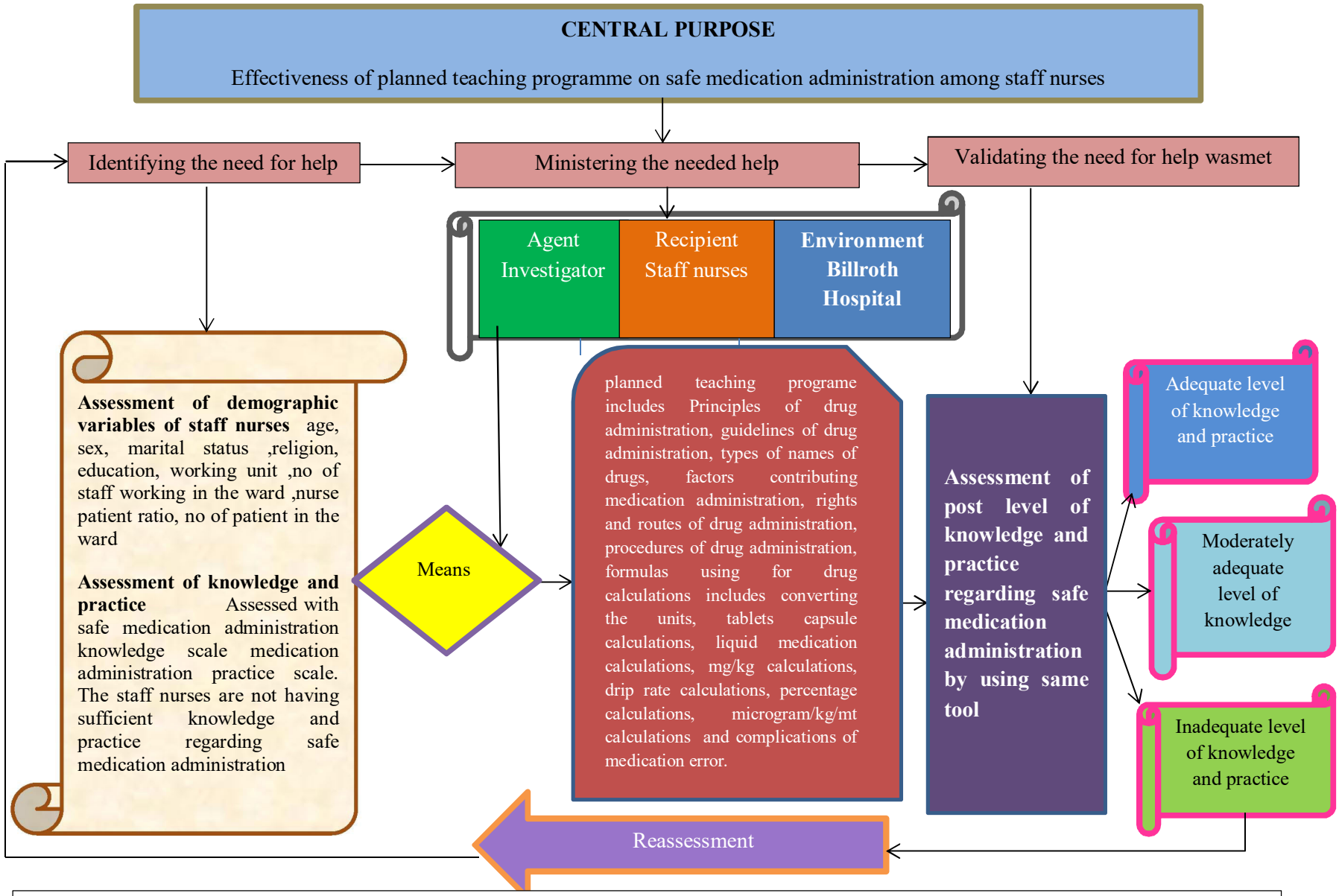

Fig 1: MODIFIDED WIEDENBACH'S HELPING ART OF CLINICAL NURSING THEORY(1970)

CHAPTER III

METHODOLOGY

The methodology of the research study is defined as the way the information is gathered in order to answer the question or analyze the research problem. It includes aspects like research design, setting of the study, population, sample, sample size, sampling technique, criteria for sample selection, description of the tool, pilot study, data collection procedure and data analysis.

The study was conducted to assess the effectiveness of planned teaching programme on knowledge and practice regarding safe medication administration among staff nurses working in selected hospital at Chennai.

RESEARCH DESIGN

The research design selected for this study was pre experimental one group per test and post test design.

Pre test	Intervention	Post test
O1	X	O2

O1 - Assessment of pretest level of knowledge and practice regarding safe medication administration among staff nurses

X - Planned teaching programme regarding safe medication administration

O2 - Assessment of posttest level of knowledge and practice regarding safe medication administration among staff nurses

SETTING OF THE STUDY

The study was conducted in Billroth hospital. Billroth Hospital is a super specialty hospital chain based in Chennai, Tamil Nadu, and India. It was founded by

Dr. V. Jeganathan on 30 November 1990. He was a well known Surgical Gastroenterologists, Laser and Laparoscopic Surgeon. Billroth Hospital has its branches in Shenoy Nagar, R A Puram and Tiruvallur. Facilities available in this hospital are Ambulance & Emergency Service, Critical Care Unit, diagnostic Services such as Dual Source CT and several others like dialysis and endoscopy. It consists of 500 bedded hospital. There are 280 nurses are working in this hospital.

POPULATION

The populations consist of staff nurses working in Billroth hospital.

SAMPLE

The sample consists of staff nurses with 1 year of clinical experience who fulfilled the inclusive criteria.

SAMPLE SIZE

The sample size consists of 30 staff nurses with 1 year of clinical experiences

SAMPLING TECHNIQUE

Purposive sampling technique was used to select the staff nurses

CRITERIA FOR SAMPLE SELECTION

Inclusion criteria

- The staff nurses with one year of experience.
- The Staff nurses who had registered in state nursing council.

Exclusion criteria

- The staff nurses who were not willing to participate in the study.
- The staff nurses who were in night shift.

DESCRIPTION OF THE INSTRUMENT

The instrument was developed after the literature review and guidance from the experts. It consists of four parts

Part-I

It consists of demographic variables includes age ,sex, education, religion, marital status, working unit, number of staffs working in the ward, number of patient in the ward, nurse patient ratio in the ward.

Part II

It includes the assessment of knowledge regarding safe medication administration. It had self administrative question. The correct response carries one mark in each question. It consists of 30 multiple choice questions. The scores are interpreted as followed

- 76 -100 Adequate knowledge
- 51 -75 Moderately adequate knowledge
- 0 -50 Inadequate knowledge

Part III

It includes the assessment of practice regarding safe medication administration. It consist of 20 steps for safe medication administration .The scoring was given as below

- 0 for not performed the task
- 1 for performed the task

The scores are interpreted as follows

- 65-100 Adequate practice
- < 65 Inadequate practice

Part IV

It includes the planned teaching programme which consists of principles of drug administration, guidelines of safe medication administration, types of drug names, factors contributing medication administration, rights of safe medication administration, routes of drug administration, procedures of drug administration, formulas using in drug calculations includes converting unit, liquid medication calculations, tablet capsule calculations, mg/kg calculations, drip rate calculations, percentage calculations, microgram/kg/mt calculations and complications of medication error. Audiovisual aids like LCD and pamphlet used for this planned teaching programme.

VALIDITY

The content validity of the instrument was obtained from the experts in the field of medical and surgical nursing. The expert suggested alignment of questions reduction and reorganization of certain items were made. Appropriate modification was made accordingly and the tool was finalized.

RELIABILITY

The study was conducted on the effectiveness of planned teaching programme on knowledge and practice regarding safe medication administration among staff nurses working in selected hospital at Chennai. Reliability was measured by test retest method. The correlation coefficient was found to both knowledge and practice. The knowledge value was to be 0.9,and practice value was to be 0.8 .So the tool was considered highly reliable to conduct this study.

ETHICAL CONSIDERATION

The study was conducted after the approval of ethical committee. Formal written permission was obtained from the Nursing superintendent, Billroth hospital at Chennai. The staff nurses were explained about the study purposes. The formal written consent was taken from the samples. The usual assurance of anonymity and confidentiality was obtained.

PILOT STUDY

The refined tool was used for pilot study to test the feasibility, appropriateness and practicability. The pilot study was conducted in billroth hospital at Chennai from the duration of 26.10.2016 to 02.11.2016. A formal written permission from the concerned authorities and a written consent from the staff nurses were obtained. It was carried out with 10 staff nurses who fulfilled the inclusion criteria by purposive sampling method.

Pretest was given for 15 to 20 minutes by using a structured questionnaire. Followed by planned teaching programme on safe medication administration and drug calculations were conducted for 25 to 30 minutes. Staff nurses doubts and questions were clarified by the researcher. The post test was conducted then with the same set of tool.

The collected data was tabulated and statically analyzed. The instrument used for the study was reliable and test retest method was used. The knowledge value was r = 0.9 and practice value was r = 0.8. The trial run revealed that clarity, feasibility, reliability, practicability in all aspect to conduct the main study.

DATA COLLECTION PROCEDURE

A formal written permission was obtained from the management of Billroth hospital. The formal written consent obtained from staff nurses. The data were collected over a period of 4 weeks in the month of December from 01.12.2016 to 31.12.2016. The study was carried out with 30 staff nurses who fulfilled the inclusion criteria. Purposive sampling technique was used for selecting the staff nurses. Self-introduction was given followed by adequate explanation about the purpose of the study to ensure better cooperation.

Each day about 4 to 5 staff nurses was assessed on the level of knowledge and 20-30 mts for assessing the practice regarding safe medication administration. A pretest was conducted to assess the existing knowledge and practice regarding safe medication administration followed by that planned teaching programme on safe

medication administration and its practices was educated to the staff nurses. A post test was conducted after 7 days to assess the level of knowledge and practice with the same tool provided in the pretest.

DATA ANALYSIS

The data was analyzed in terms of the objectives of the study using descriptive and inferential statistics. A demographic variable of staff nurses was analyzed in terms of frequency and percentage. Mean and Standard Deviation was used to compute pretest and posttest level of knowledge among staff nurses. Paired 't' test was used to evaluate the effectiveness of planned teaching programme on knowledge and practice regarding safe medication administration among staff nurses. Correlation Coefficient test was used to analyses the relationship between post test level of knowledge and practice regarding safe medication administration. Chi Square test was used to associate the pretest and posttest level of knowledge and practice among the staff nurses with their demographic variables.

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A study to assess the effectiveness of planned teaching programme on knowledge and practice regarding safe medication administration among staff nurses working at selected hospital Chennai.

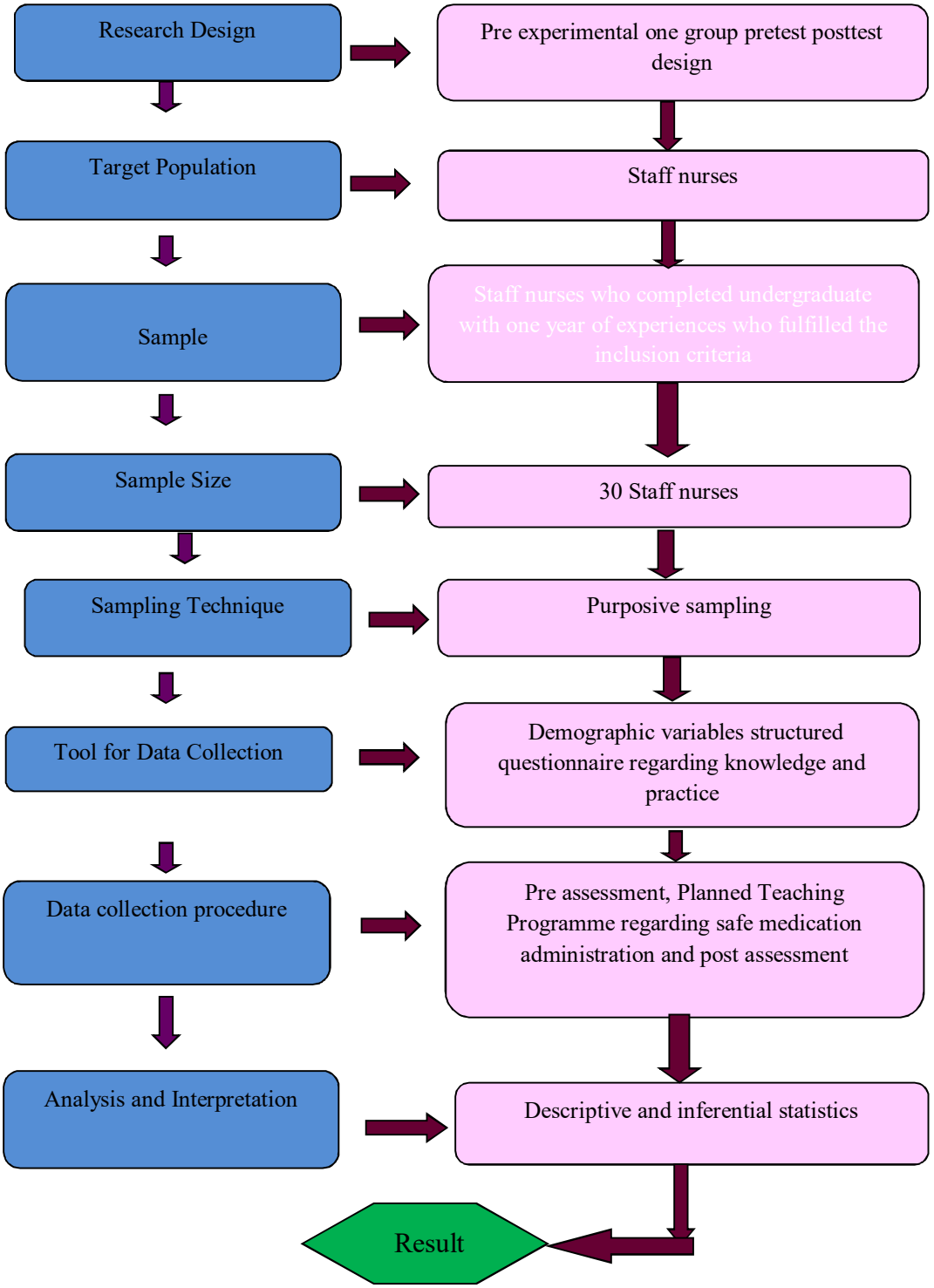


Fig. 2: Schematic representation of research methodology adapted in this study.

CHAPTER IV

DATA ANALYSIS AND INTERPRETATION

Abdellah and Levine mentioned that interpretation of tabulated data could bring light to the real meaning of the findings of a study. According to Kerlinger, "Analysis is the categorizing, ordering, manipulating and summarizing of data to obtain answer to the research questions". The analysis of the data was done using descriptive and inferential statistical methods, organized and presented in the form of tables and graphs. The data analysis was done based on the objectives of the study.

Section A Frequency and percentage distribution of demographic variables among staff nurses.

Section B: Frequency and percentage distribution of pre test level of knowledge regarding safe medication administration among staff nurses.

Section C: Frequency and percentage distribution of post test level of knowledge regarding safe medication administration among staff nurses.

Section D: Frequency and percentage distribution of pre test level of practice regarding safe medication administration among staff nurses.

Section E: Frequency and percentage distribution of post test level of practice regarding safe medication administration among staff nurses.

Section F: Comparison of mean and standard deviation between pretest and post test level of knowledge regarding safe medication administration among staff nurses.

Section G: Comparison of mean and standard deviation between pretest and post test level of practice regarding safe medication administration among staff nurse.

Section H: Correlation between post test knowledge and practice regarding safe medication administration among staff nurses.

Section I: Association of pre test level of knowledge regarding safe medication administration among staff nurses with their demographic variables.

Section J: Association of post test level of knowledge regarding safe medication administration among staff nurses with their demographic variables.

Section K: Association of pre test level of practice regarding safe medication administration among staff nurses with their demographic variables.

Section L: Association of post test level of practice regarding safe medication administration among staff nurses with their demographic variables.

SECTION-A

Table 1: Frequency and percentage distribution of the selected demographic variables among nurses

Sl. No.	Demographic Variables	Frequency	Percentage
1	**Age in years**		
	a) 20yrs	4	13.3
	b) 21yrs	15	50.0
	c) 22yrs and above	11	36.7
2	**Sex**		
	a) Male	2	6.7
	b) Female	28	93.3
3	**Education**		
	a) B.Sc Nursing	24	80
	b) Diploma in Nursing	6	20
4	**Religion**		
	a) Hindu	20	66.7
	b) Christian	9	30.0
	c) Muslim	1	3.3
5	**Marital status**		
	a) Married	7	23.3
	b) Un Married	23	76.7
6	**Working unit**		
	a) Ward	15	50.0
	b) ICU	11	36.7
	c) Cathlab	4	13.3
7	**No of staffs working in the ward**		
	a) 5	15	50.0
	b) 3	1	3.3
	c) 7	14	46.7
8	**No of patients in the ward**		
	a) Less than 15	18	60.0
	b) More than 15	12	40.0
9	**Nurse patients ratio in the ward**		
	a) 1:7	0	0
	b)1:5	13	43.3
	c)1:3	17	56.7

Table 1 represents the frequency and percentage distribution of demographic variables among staff nurses .With respect to the age of staff nurses, 4(13.3%) were in the age group of 20 years, 15(50%) were in the age group of 21 years and 11(36.7%) were in the age group of 22 years and above. Considering the sex of staff nurses, 2(6.7%) were male and, 28(93.3%) were female staff nurses.

Regarding the education of staff nurses, 24(80%) have completed B.Sc nursing, 6(20%) have completed Diploma in nursing, related to their religion 20(66.7%) were Hindus, 9(30%) were Christians,1(3.3%)was Muslim.

Related to the marital status of staff nurses 7(23.7%) were married, 23(76.7%) were unmarried. In accordance with the working unit, 15(50%) were working in ward,11(36.7%) were working in ICU, and 4(13.3) were working in cathlab.

Regarding the number of staffs working in the unit, 15(50%) were 5 staffs working in one unit, 1(3.3%) 3 staffs were working in one unit, and 14(46.7%) 7 staffs were working in one unit. In concern with number of patient in the ward, 18(60%) were in less than 15 patients, 12(40%) were in more than 15 patients .With respect of nurse patient ratio in the ward, 13(43.3%) were 1:5 ratio, 17(56.7%) were 1:3 ratio, and no staffs were working in 1:7 ratio.

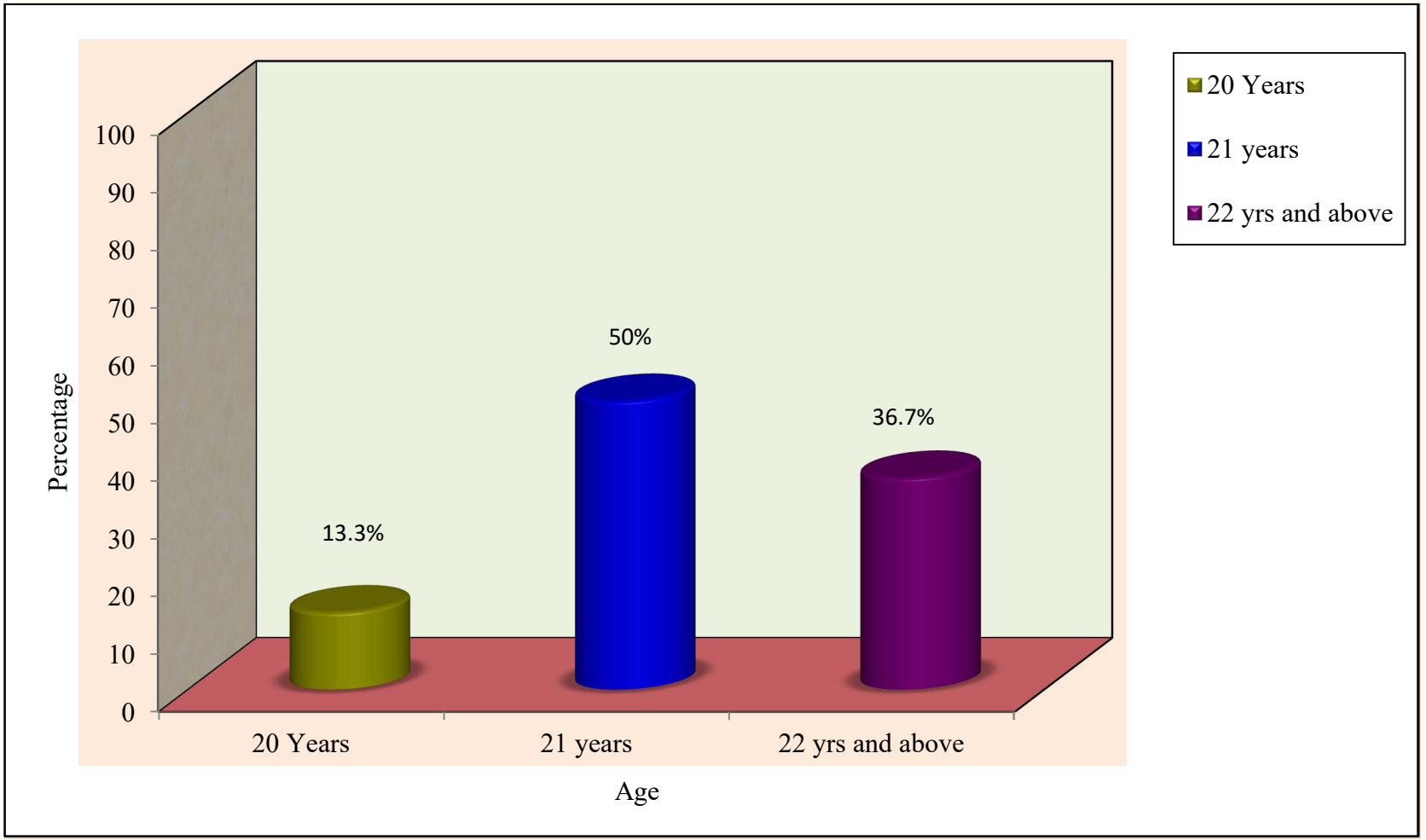


Fig 3: Percentage distribution of age among staff nurses

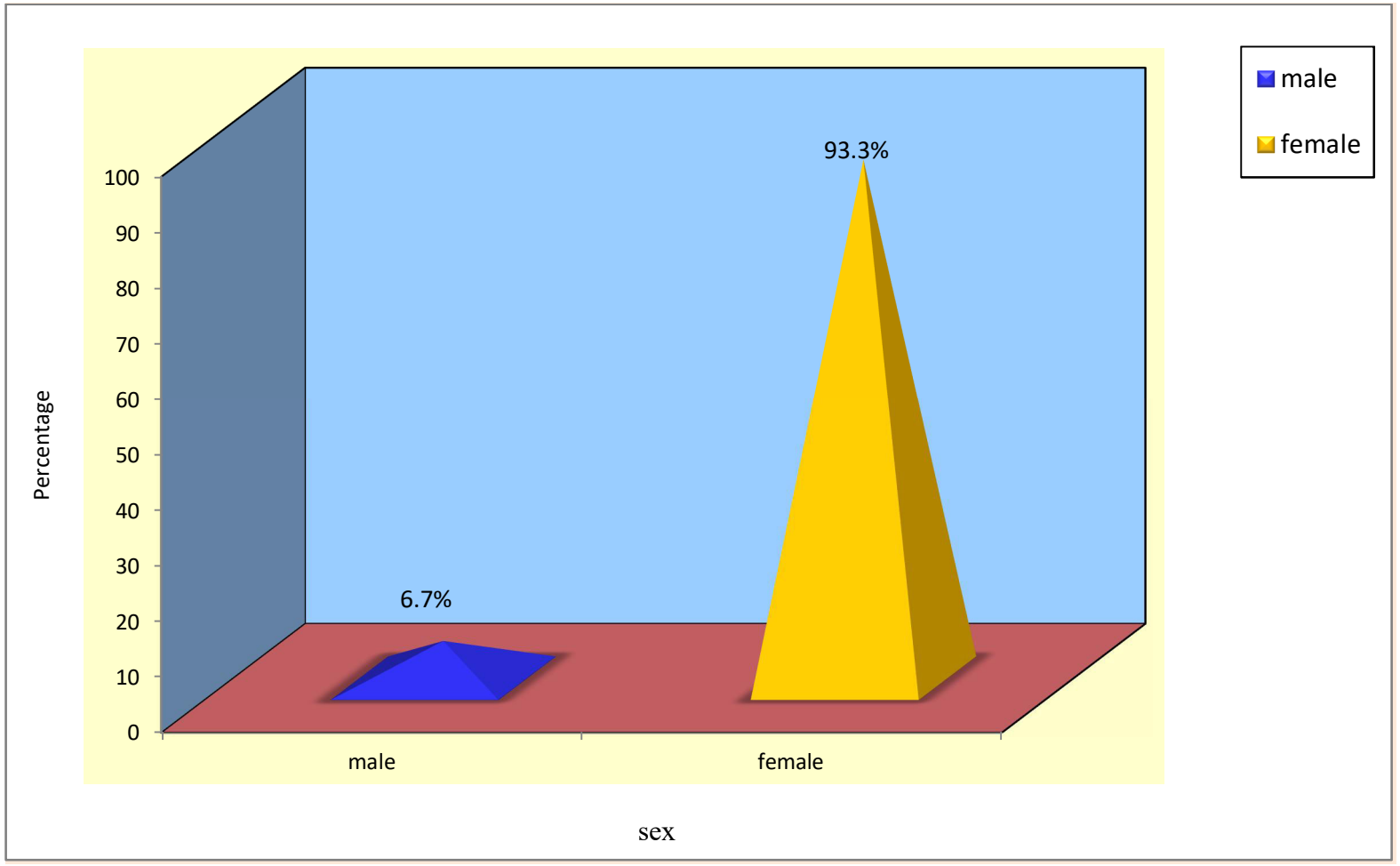


Fig. 4: Percentage distribution of sex among staff nurses

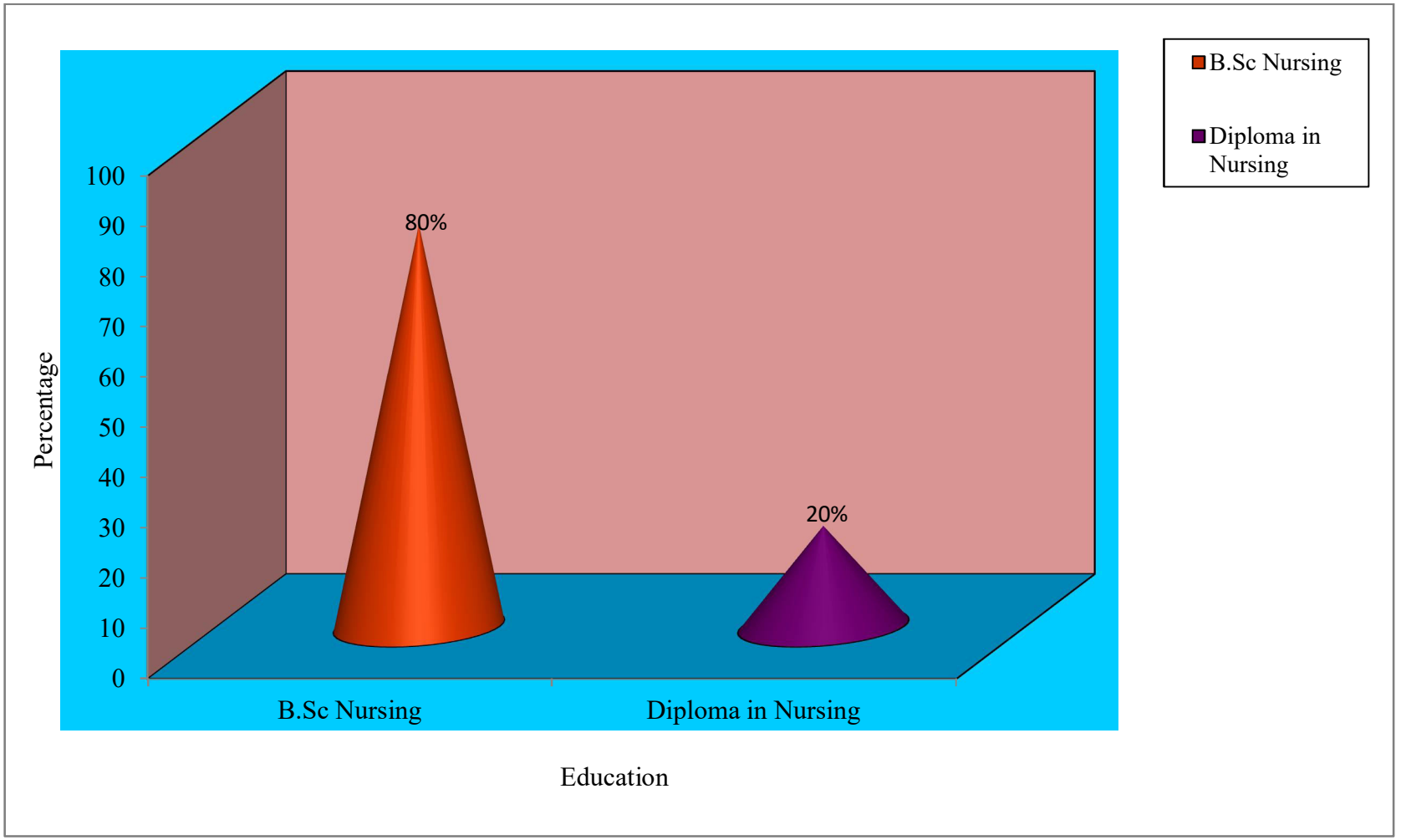


Fig.5: Percentage distribution of education among staff nurses

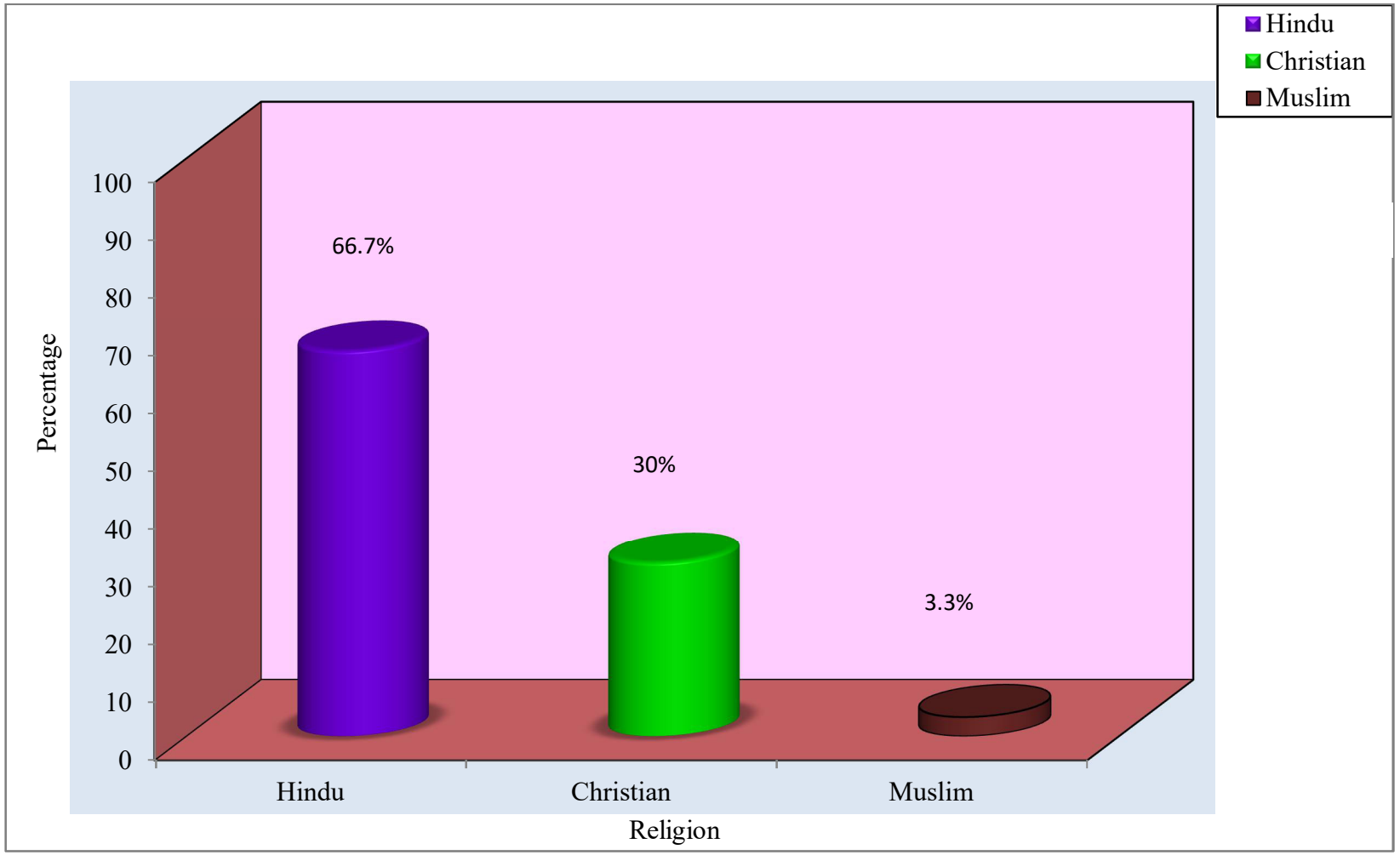


Fig. 6: Percentage distribution of religion among staff nurses

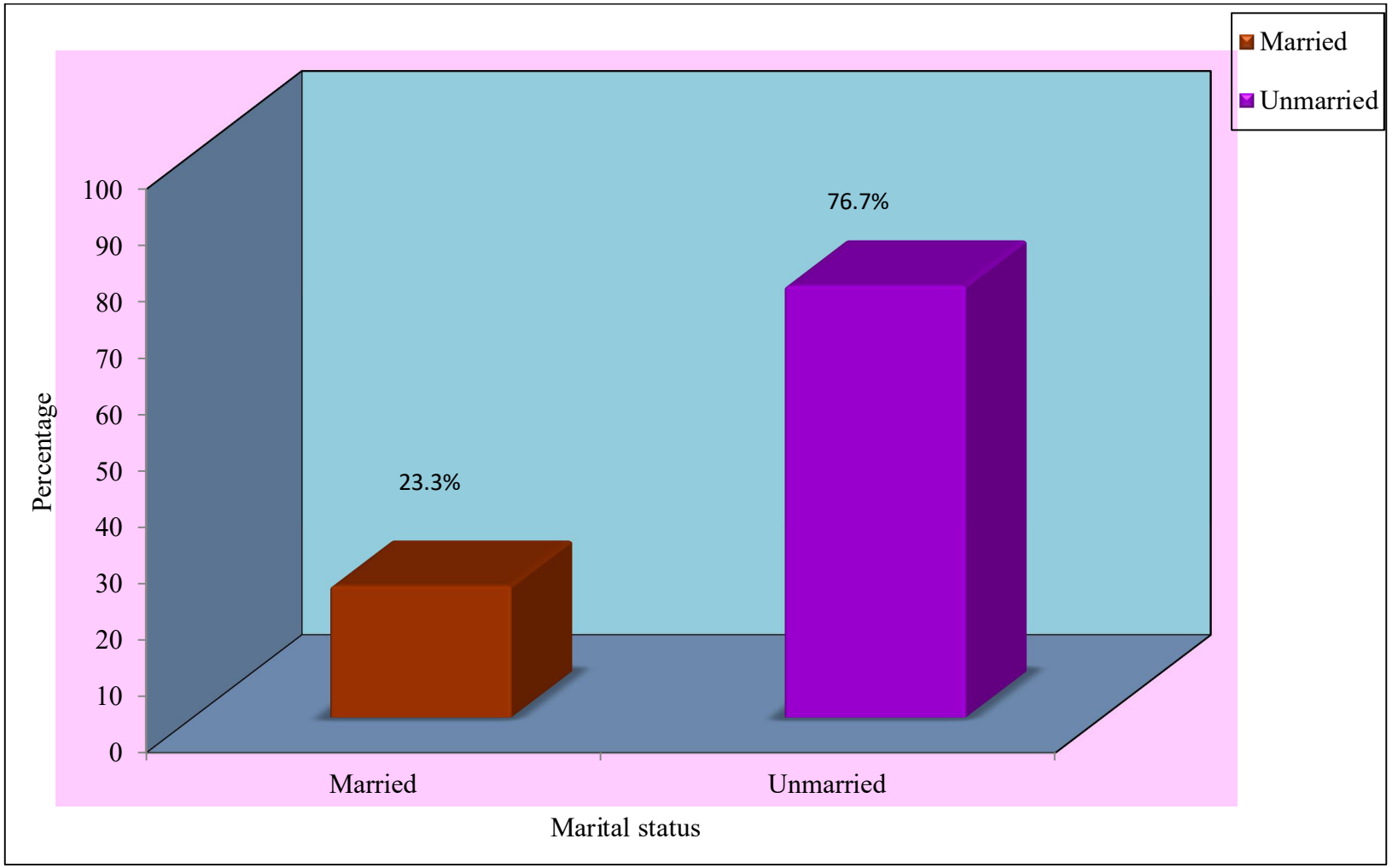


Fig. 7: Percentage distribution of marital status among staff nurses

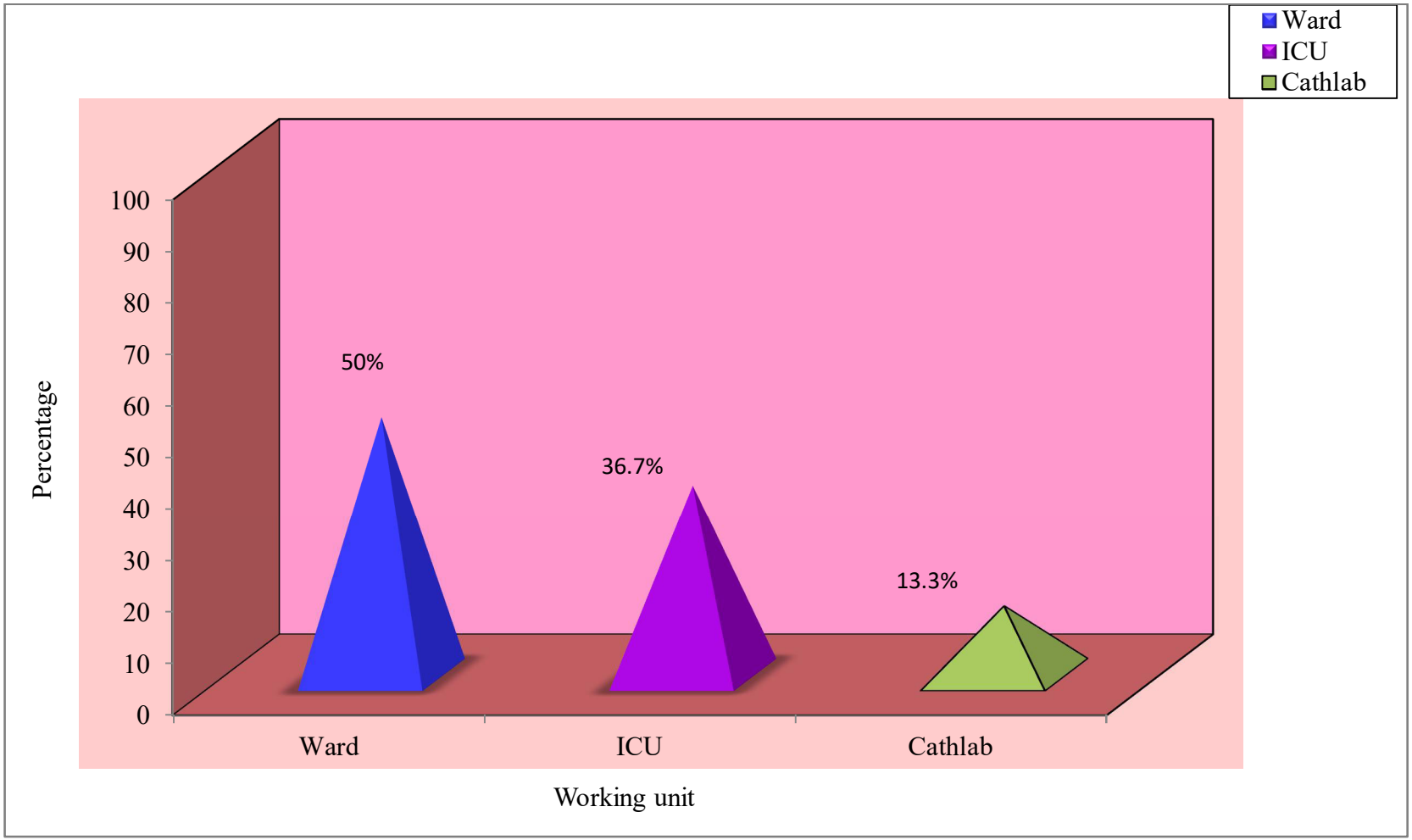


Fig. 8: Percentage distribution of working unit among staff nurses

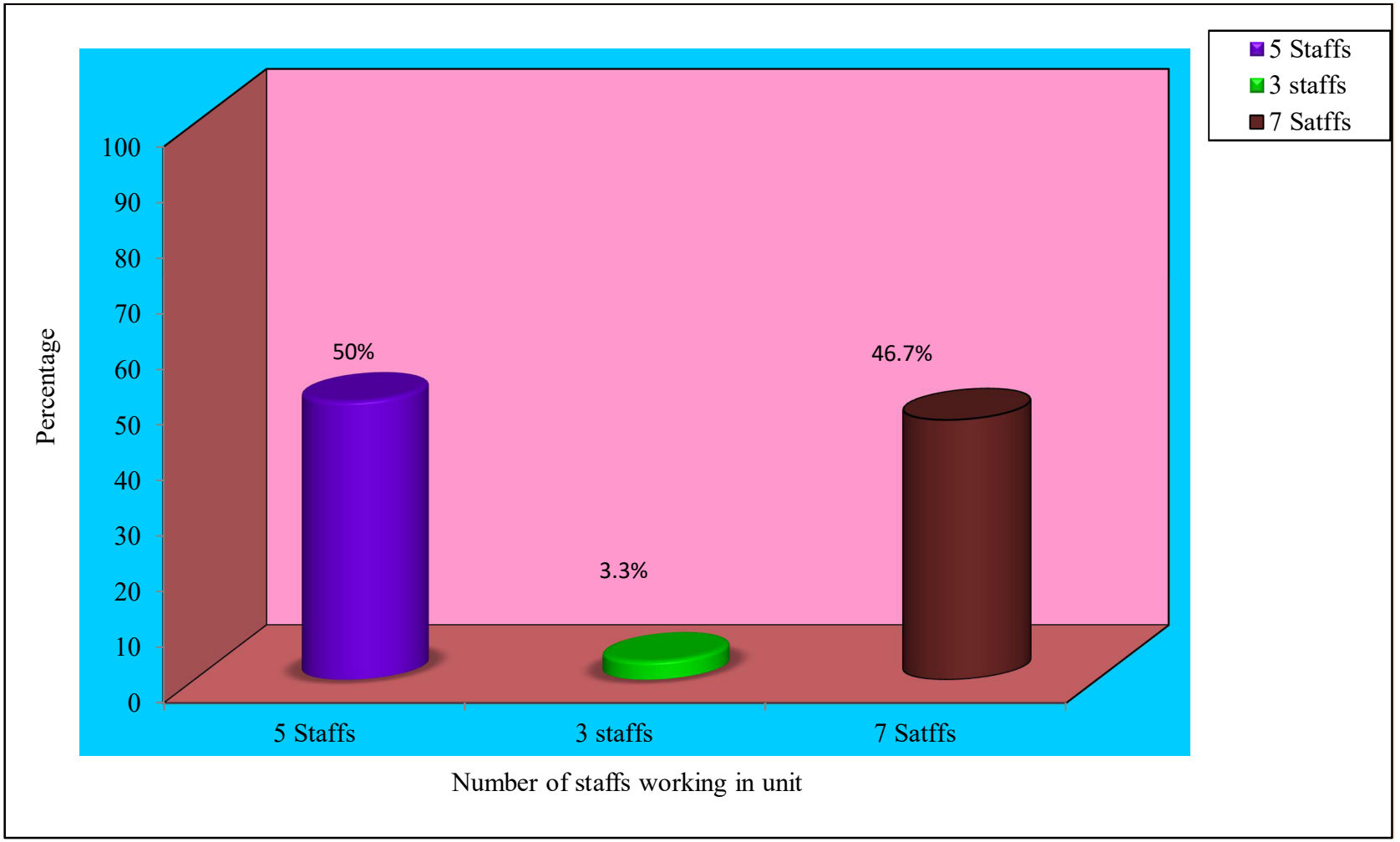
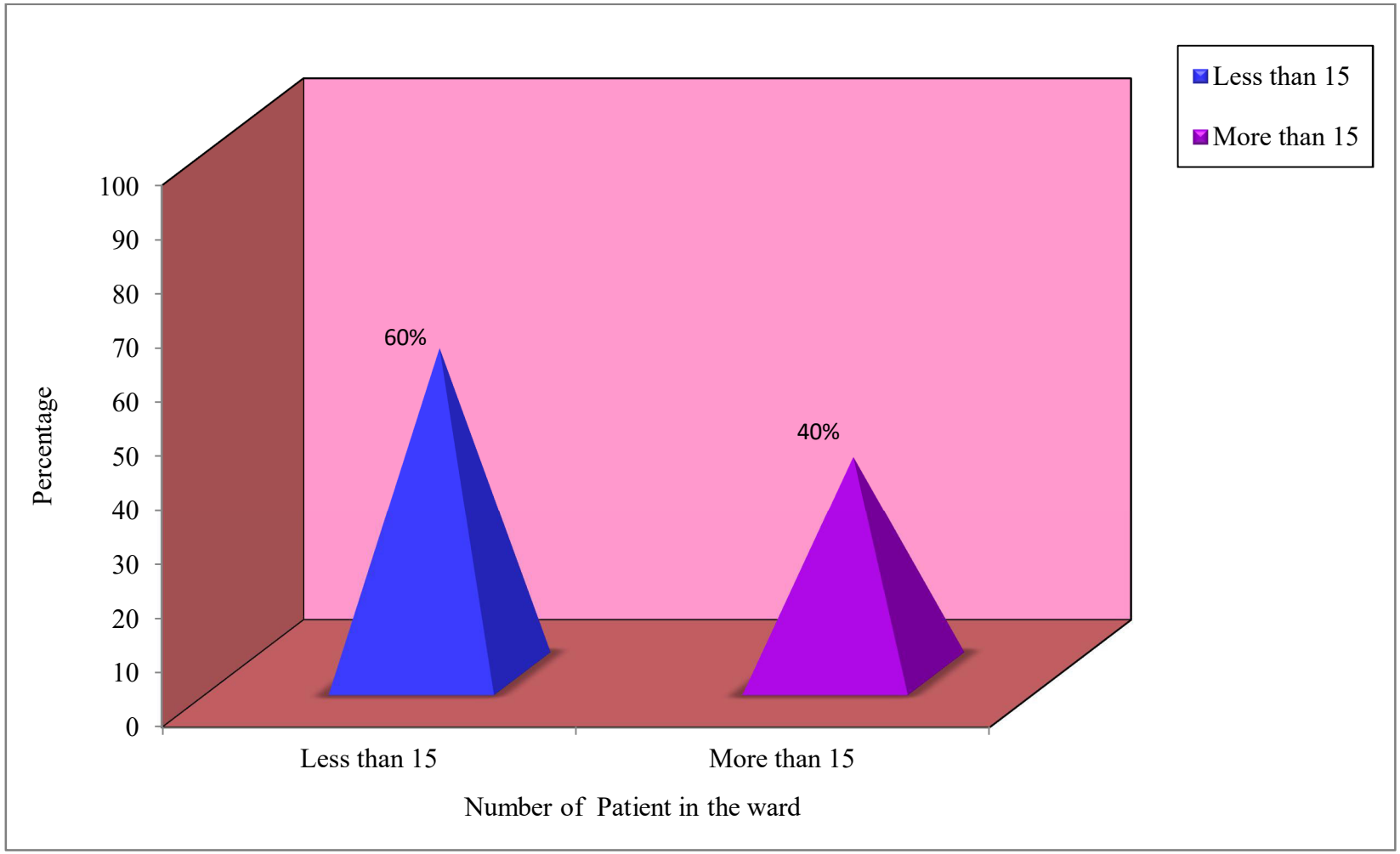


Fig. 9: Percentage distribution of number of staffs working in one unit



Fig, 10: Percentage distribution of number of patient in the ward

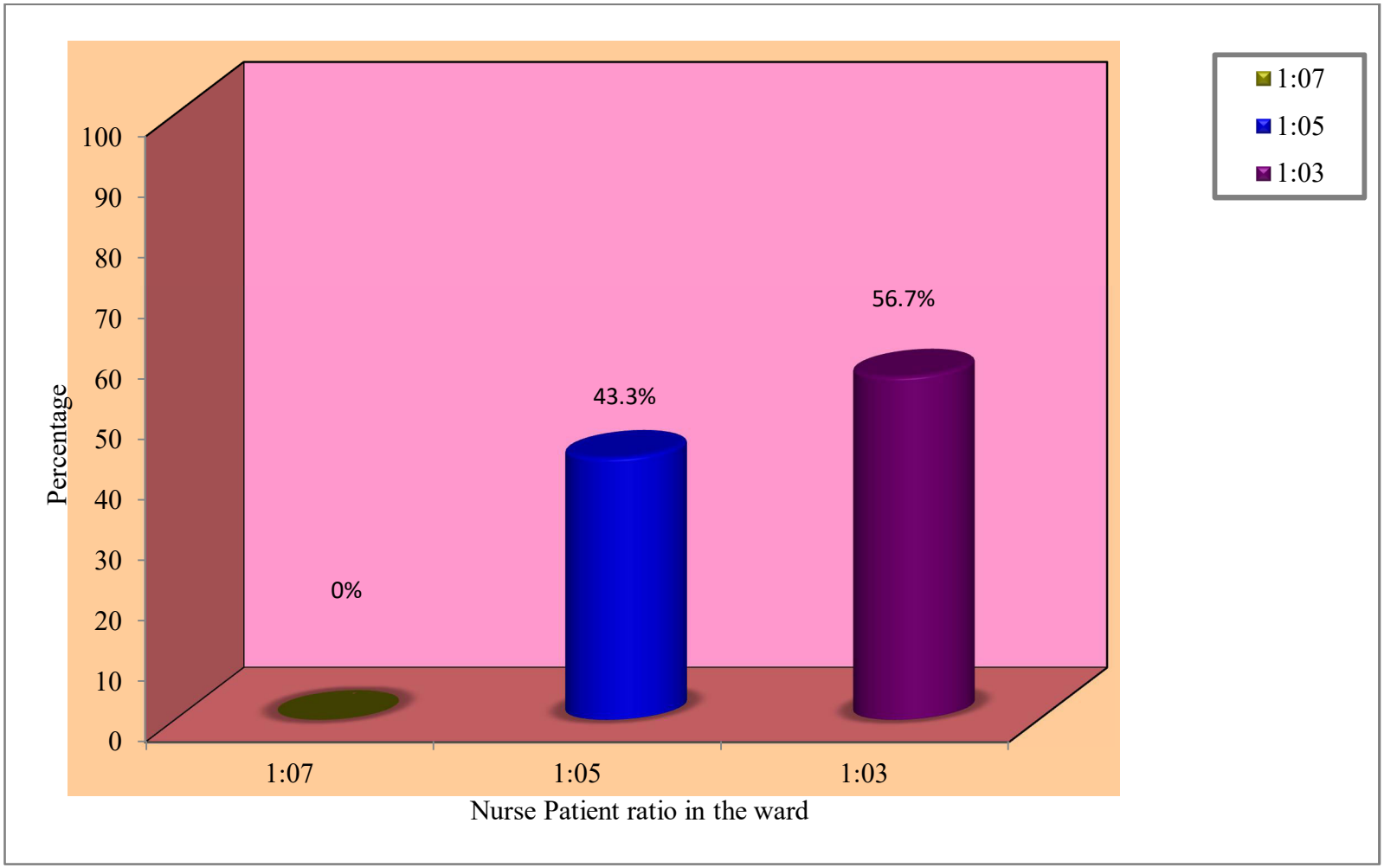


Fig. 11: Percentage distribution of nurse patient ratio in the ward

SECTION – B

Table 2: Frequency and percentage distribution of pretest level of knowledge regarding safe medication administration among staff nurses

N=30

Level of knowledge	Frequency	Percentage
Inadequate	23	77
Moderately adequate	5	17
Adequate	2	6

Table 2 represents the frequency and percentage distribution of pretest level of knowledge regarding safe medication administration among staff nurses. In pretest 23(77%) staff nurses had inadequate knowledge and 5(17%) of them had moderately adequate knowledge and only 2(6%) of them had adequate knowledge.

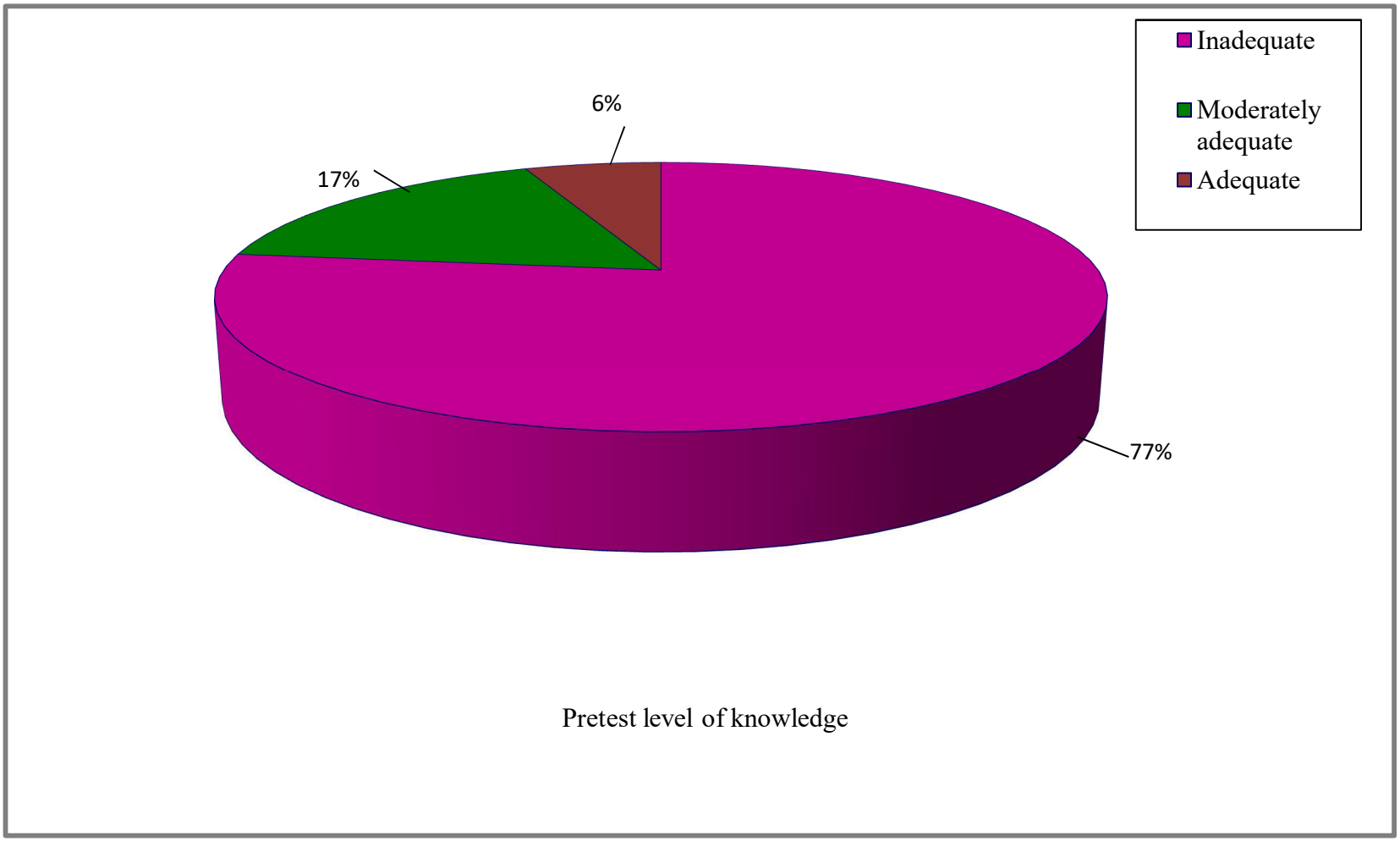


Fig. 12: Percentage distribution of pretest level of knowledge regarding safe medication administration among staff nurses

SECTION – C

Table 3: Frequency and percentage distribution of post test level of knowledge regarding safe medication administration among staff nurses.

N=30

Level of knowledge	Frequency	Percentage
Inadequate	0	0
Moderately adequate	10	33
Adequate	20	67

Table 3 represents the frequency and percentage distribution of posttest level of knowledge regarding safe medication administration among staff nurses. In posttest almost 20(67%) of them had adequate knowledge, 10(33%) of them had moderately adequate knowledge and none of the staff nurses had inadequate knowledge.

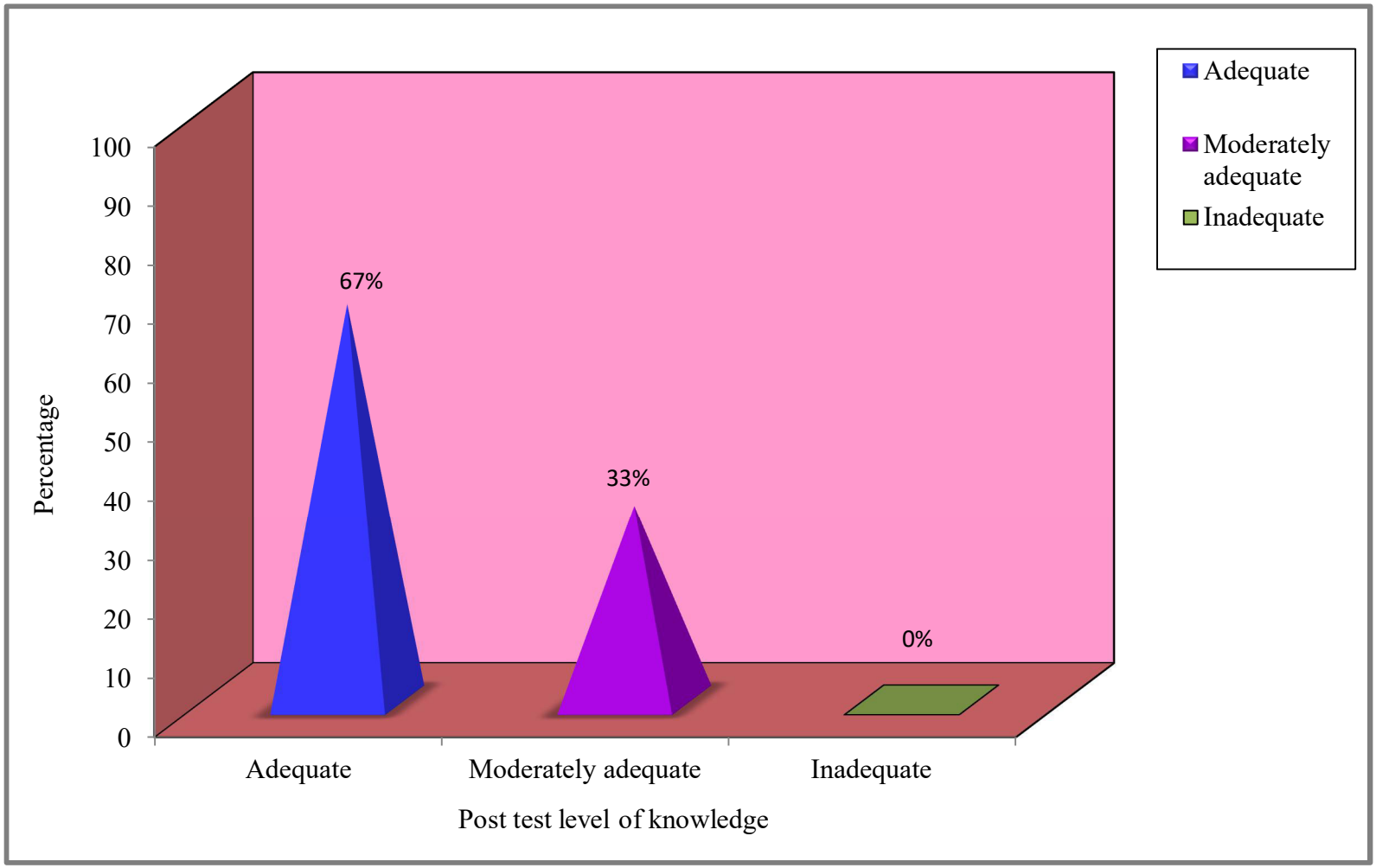


Fig.13: Percentage distribution of post level of knowledge regarding safe medication administration among staff nurses

SECTION – D

Table 4: Frequency and percentage distribution of pretest level of practice regarding safe medication administration among staff nurses

N=30

Level of practice	Frequency	Percentage
Inadequate	25	83
Adequate	5	17

Table 4 represents the frequency and percentage distribution of pretest level of practice regarding safe medication administration among staff nurses. In pretest 25(83%) of staff nurses had inadequate practice and only 5(17%) of them had adequate practice

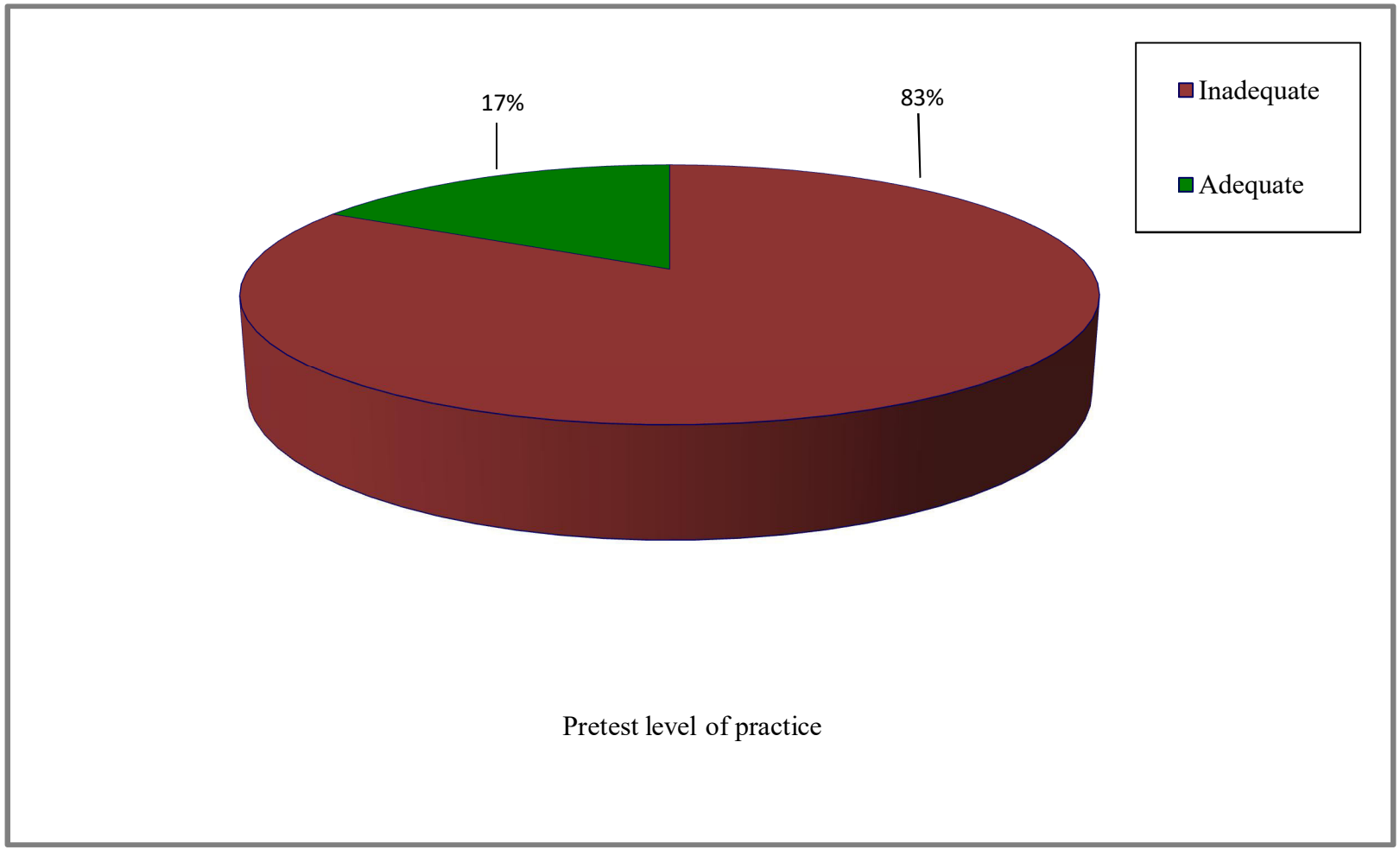


Fig. 14: Percentage distribution of pretest level of practice regarding safe medication administration among staff nurses

SECTION – E

Table 5: Frequency and percentage distribution of posttest level of practice regarding safe medication administration among staff nurses

N=30

Level of practice	Frequency	Percentage
Inadequate	2	6
Adequate	28	94

Table 3 represents the frequency and percentage distribution of post test level of practice regarding safe medication administration among staff nurses. In posttest almost 28(94%) of them had adequate practice and only 2(6%) staff nurses had inadequate practice

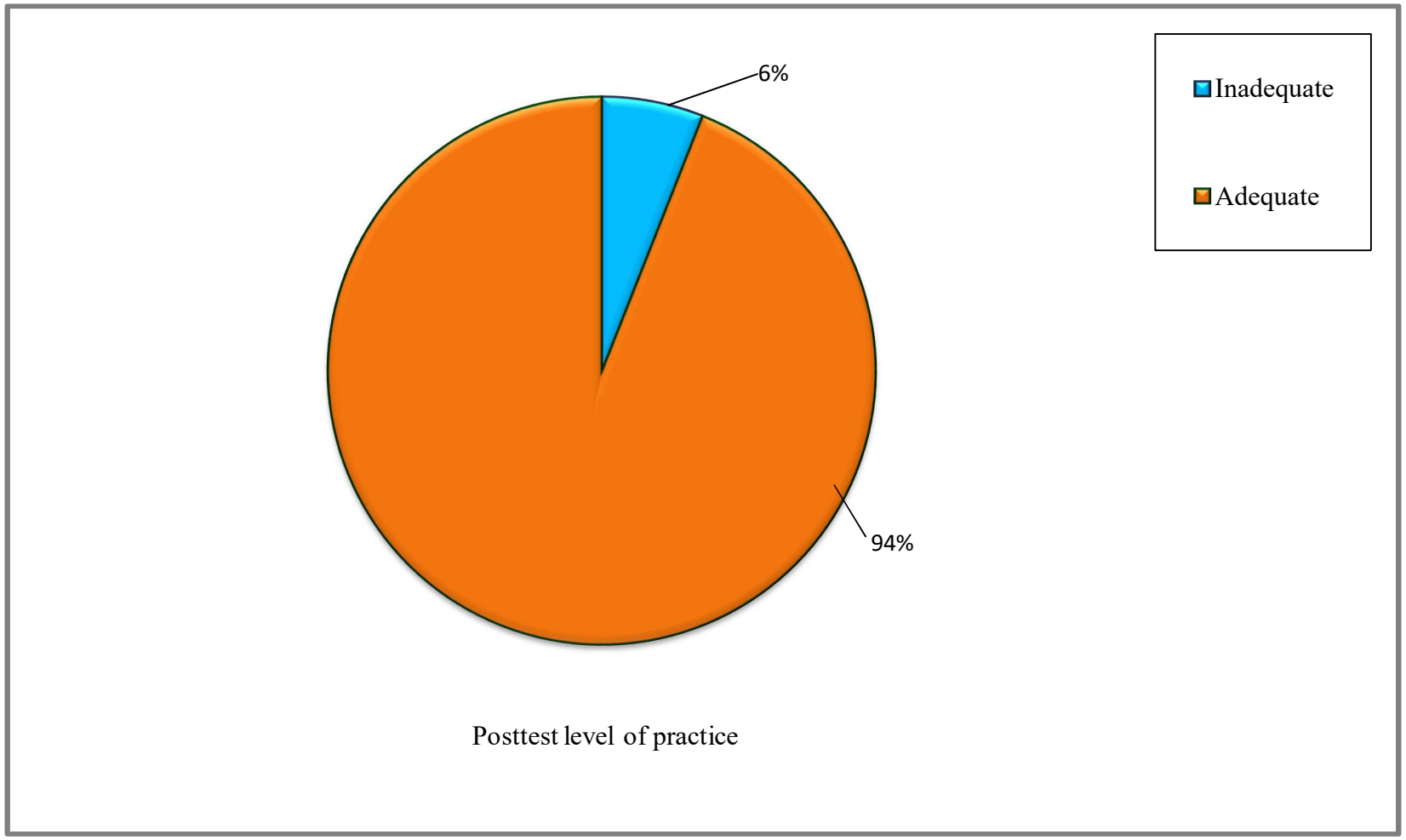


Fig. 15: Percentage distribution of post level of practice regarding safe medication administration among staff nurse

SECTION – F

Table 6: Comparison of mean and standard deviation between pre test and post test level of knowledge regarding safe medication administration among staff nurses

N=30

Assessment	Mean	Standard deviation	Paired 't' value
Pre test	12	4.40	20.13***
Post test	22.3	2.37	

*** $p<0.001$

Table 6 depicts the comparison of mean and standard deviation between pre test and post test level knowledge on safe medication administration among staff nurses. The mean score was increased from 12 to 22.3 which showed a marked difference of 10.3 respectively and the standard deviation was decreased from 4.40 to 2.37 after the administration of planned teaching programme. The paired 't' test value at 20.13, was very highly significant at $p<0.001$ level. It indicates the effectiveness of planned teaching programme on increasing the level of knowledge regarding safe medication administration among staff nurses.

SECTION – G

Table 7: Comparison of mean and standard deviation between pre test and post test level of practice regarding safe medication administration among staff nurses

N=30

Assessment	Mean	Standard deviation	Paired 't' value
Pre test	9.8	3.31	22.10***
Post test	20.2	1.85	

*** $p<0.001$

Table 7 depicts the comparison of mean and standard deviation between pre test and post test level practice regarding safe medication administration among staff nurses. The mean score was increased from 9.8 to 20.2 which showed a marked difference of 10.4 respectively and the standard deviation was decreased from 3.31to 1.85 after the administration of planned teaching programme. The paired 't' test value at 22.10, was very highly significant at $p<0.001$ level. It indicates the effectiveness of planned teaching programme on increasing the level of practice regarding safe medication administration among staff nurses

SECTION – H

Table 8: Correlation coefficient of posttest level of knowledge and practice regarding safe medication administration among staff nurses

N=30

Assessment	Correlation coefficient
Post test knowledge	1.002
Post test practice	

$p<0.001$

Table 8 depicts the Correlation coefficient of posttest level of knowledge and practice was 1.002, it reveals there is positive correlation between posttest level of knowledge and practice of safe medication administration among staff nurses.

SECTION – I

Table 9:Association of pretest level of knowledge regarding safe medication administration among staff nurses with their demographic variables.

N=30

S. No	Demographic Variables	Pretest level of knowledge						Chi square χ^2
		Inadequate		Moderate		Adequate		
		n	%	n	%	n	%	
1.	**Age**							
	a) 20yrs	3	10	1	3.33	0	0	$\chi2$=3.79
	b) 21yrs	11	36.6	3	10	1	3.33	df= 4
	c) 22yrs and above	10	33.3	1	3.33	1	3.33	NS
2	**Sex**							$\chi2$=2.16
	a) Male	1	3.33	1	3.33	0	0	df= 2
	b) Female	22	73.3	4	13.3	2	6.66	NS
3	**Education**							$\chi2$=3.03
	a) B.ScNursing	20	66.6	3	10	1	3.33	df= 2
	b) Diploma in Nursing	3	10	2	6.66	1	3.33	NS
4	**Religion**							$\chi2$=0.90
	a) Hindu	16	53.3	3	10	1	3.33	df= 4
	b) Christian	6	20	2	6.66	1	3.33	NS
	c) Muslim	1	3.33	0	0	0	0	
5	**Maritalstatus**							$\chi2$=2.80
	a) Married	6	20	0	3.33	1	3.33	df= 2
	b) Un Married	17	56.6	5	16.6	1	3.33	NS
6	**Working unit**							
	a) Ward	15	50	0	0	0	0	$\chi2$=1.39
	b) ICU	5	16.6	5	16.6	1	3.33	df= 4
	c) Cathlab	3	10	0	0	1	3.33	NS
7	**No. of staffs working in unit**							$\chi2$=0.39
	a) 5	13	43.3	1	3.33	1	3.33	df= 4
	b) 3	1	3.33	0	0	0	0	NS
	c) 7	9	30	4	13.3	1	3.33	
8	**No. of patients in the ward**							$\chi2$=1.36
	a) Less than 15	14	4.66	3	10	1	3.33	df= 2
	b) More than 15	9	30	2	6.66	1	3.33	NS
9	**Nurse patients ratio in ward**							
	a) 1:7	0	0	0	0	0	0	$\chi2$=2.39
	b) 1:5	9	30	3	10	1	3.33	df= 4
	c) 1:3	14	4.66	2	6.66	1	3.33	NS

NS- Non Significant

Table 9 showed the association of pre test level of knowledge among staff nurses with their demographic variables. None of the demographic variables are significantly associated with their pre test level of knowledge score.

SECTION – J

Table 10: Association of posttest level of knowledge regarding safe medication administration among staff nurses with their demographic variables.

N=30

S.No	Demographic Variables	Posttest level of knowledge						Chi square χ^2
		Inadequate		Moderate		Adequate		
		n	%	n	%	n	%	
1.	**Age**							
	a) 20yrs	0	0	0	0	4	13.3	χ2=4.19
	b) 21yrs	0	0	5	16.6	10	33.3	df= 4
	c) 22yrs and above	0	0	5	16.6	6	20	NS
2	**Sex**							χ2=2.15
	a) Male	0	0	0	0	2	6.66	df= 2
	b) Female	0	0	10	13.3	18	60	NS
3	**Education**							**χ2=6.13**
	a) B.ScNursing	0	0	7	23.3	17	56.6	**df= 2**
	b) Diploma in Nursing	0	0	3	10	3	10	**S***
4	**Religion**							χ2=1.90
	a) Hindu	0	0	3	10	17	56.6	df= 4
	b) Christian	0	0	7	23.3	2	6.66	NS
	c) Muslim	0	0	0	0	1	3.33	
5	**Maritalstatus**							χ2=4.10
	a) Married	0	0	1	3.33	6	20	df= 2
	b) Un Married	0	0	9	30	14	46.6	NS
6	**Working unit**							
	a) Ward	0	0	5	16.6	10	33.3	**χ2=11.19**
	b) ICU	0	0	2	6.66	9	30	**df= 4**
	c) Cathlab	0	0	3	10	1	3.33	**S***
7	**No. of staffs working in unit**							χ2=2.39
	a) 5	0	0	2	6.66	13	43.3	df= 4
	b) 3	0	0	0	0	1	3.33	NS
	c) 7	0	0	8	26.6	6	20	
8	**No. of patients in the ward**							χ2=3.36
	a) Less than 15	0	0	3	10	15	50	df= 2
	b) More than 15	0	0	7	23.3	5	16.6	NS
9	**Nurse patients ratio in ward**							χ2=5.29
	a) 1:7	0	0	0	0	0	0	df= 4
	b) 1:5	0	0	3	10	10	33.3	NS
	c) 1:3	0	0	7	23.3	10	3.33	

** p<0.001, S*-Statistically Significant, NS- Non Significant

Table 10 showed the association of posttest level of knowledge among staff nurses and their demographic variables. The chi square value of 6.13 showed that there was a significant association of education and posttest level of knowledge after structured teaching programme at the level of $p<0.001$.

With regard to the working unit chi square value of 11.19 was significant association of posttest level of knowledge after planned teaching programme at the interval of $p<0.001$. There was no significant association was found with other demographic variables such as age, marital status, religion, sex, no of staffs working in the unit, no of patient in the ward, nurse patient ratio.

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SECTION – K

Table 11: Association of pre test level of practice regarding safe medication administration among staff nurses with their demographic variables.

N=30

S. No	Demographic Variables	Pretest level of practice				Chi square χ^2
		Inadequate		Adequate		
		n	%	n	%	
1.	**Age** a) 20yrs b) 21yrs c) 22yrs and above	 4 12 9	 13.3 40 30	 0 3 2	 0 10 6.66	$\chi2$=2.79 df= 2 NS
2	**Sex** a) Male b) Female	 2 23	 6.66 76.6	 0 5	 0 16.6	$\chi2$=4.16 df= 1 NS
3	**Education** a) B.ScNursing **b)** Diploma in Nursing	 22 3	 73.3 10	 2 3	 6.66 10	$\chi2$=1.03 df= 1 NS
4	**Religion** a) Hindu b) Christian c) Muslim	 18 6 1	 60 20 3.33	 2 3 0	 6.66 10 0	$\chi2$=3.10 df= 2 NS
5	**Maritalstatus** **a)** Married b) Un Married	 3 22	 10 73.3	 4 1	 13.3 3.33	$\chi2$=3.8 df= 1 NS
6	**Working unit** a) Ward b) ICU **c)** Cathlab	 13 10 2	 43.3 33.3 6.66	 2 1 2	 6.66 3.33 6.66	$\chi2$=0.39 df= 2 NS
7	**No. of staffs working in unit** a) 5 b) 3 c) 7	 13 1 11	 43.3 3.33 36.6	 2 0 3	 6.66 0 10	$\chi2$=1.49 df= 2 NS
8	**No. of patients in the ward** a) Less than 15 b) More than 15	 5 2	 16.6 6.66	 1 0	 3.33 0	$\chi2$=2.5 df= 1 NS
9	**Nurse patients ratio in ward** a) 1:7 b) 1:5 c) 1:3	 0 12 10	 0 40 33.3	 0 3 2	 0 10 6.66	$\chi2$=3.46 df= 2 NS

NS- Non Significant

Table 11 showed the association of pretest level of practice among staff nurses and their demographic variables. None of the demographic variables are significantly associated with their pretest level of practice score.

SECTION – L

Table 12:Association of posttest level of practice regarding safe medication administration among staff nurses with their demographic variables.

N=30

S.No	Demographic Variables	Posttest level of practice				Chi square χ^2
		Inadequate		Adequate		
		n	%	n	%	
1.	**Age**					
	a) 20yrs	0	0	4	13.3	$\chi2$=8.19
	b) 21yrs	1	3.33	14	46.6	df= 2
	c) 22yrs and above	1	3.33	10	33.3	NS
2	**Sex**					$\chi2$=3.10
	a) Male	0	0	2	6.66	df= 1
	b) Female	2	6.66	26	86.6	NS
3	**Education**					$\chi2$=10.03
	a) B.ScNursing	0	0	24	80	df= 1
	b) Diploma in Nursing	2	6.66	4	13.3	S*
4	**Religion**					
	a) Hindu	1	3.33	19	63.3	$\chi2$=8.20
	b) Christian	1	3.33	8	26.6	df= 2
	c) Muslim	0	0	1	3.33	NS
5	**Maritalstatus**					$\chi2$=4.82
	a) Married	1	3.33	6	20	df= 1
	b) Un Married	1	3.33	22	73.3	NS
6	**Working unit**					
	a) Ward	1	3.33	14	46.6	$\chi2$=11.29
	b) ICU	0	0	11	36.6	df= 2
	c) Cathlab	1	3.33	3	10	NS
7	**No. of staffs working in unit**					
	a) 5	0	0	15	50	$\chi2$=11.29
	b) 3	0	0	1	3.33	df= 2
	c) 7	2	6.66	12	40	S*
8	**No. of patients in the ward**					
	a) Less than 15	0	0	18	60	$\chi2$=7.52
	b) More than 15	2	6.66	10	33.3	df= 1
						S*
9	**Nurse patients ratio in ward**					$\chi2$=10.5
	a) 1:7	0	0	0	0	df= 2
	b) 1:5	1	3.33	12	40	S*
	c) 1:3	1	33.3	16	53.3	

** p<0.001, S*-Statistically Significant, NS – Non Significant

Table 12 showed the association of posttest level of practice among staff nurses and their demographic variables. The chi square value of 10.03 showed that there was a significant association of education and posttest level of knowledge after planned teaching programme at the level of $p<0.001$.

With regard to the number of staffs working in the unit chi square value of 11.29 was significant at the interval of $p<0.01$. In concern with the number of patient in the unit chi square value of 7.52 was significant at the interval of $p<0.001$.

With concern to the number of nurse patient ratio chi square value of 10.5 was a significant association of planned teaching programme at the interval of $p<0.001$. There was no significant association was found with other demographic variables such as age, sex, religion, marital status and working unit.

CHAPTER – V

DISCUSSION

This chapter describes the result with respect to the objectives of the study and also compares the similar study with the present study findings. Knowledge and practice regarding safe medication administration and drug calculations. The findings of this study has provided an insight information of staff nurses knowledge and practice about safe medication administration in the study area, which could help in designing appropriate interventions and as a base for further wide scale studies in other part of the country.

The study aimed to assess the effectiveness of planned teaching programme on knowledge and practice regarding safe medication administration among staff nurses working in selected hospital at Chennai. The hypothesis formulated was there was significant relationship between the planned teaching programme with knowledge and practice regarding safe medication administration among staff nurses. The review of literature included related researches which provide a strong foundation for the study including the basis for conceptual framework and formation of tool.

The conceptual framework of this study was developed based on modified model of Ernestine Widenbach's helping art of clinical nursing theory. This framework includes a prescriptive theory of nursing which is described as a conceiving of a desired situation of the way to attain it. Prescriptive theories direct action towards an explicit goal. It consists of three factors central purpose, prescription and realization. a nurse develops a prescription based on a central purpose and implement is according to the realities of situation.

The study was conducted by adopting a pre experimental one group pre test post test design. The study was carried out with 30 staff nurses who fulfilled the inclusion criteria. Purposive sampling technique was used to select the sample. The investigator introduced her to the staff nurses and explained the purpose of the study to ensure better cooperation. Written consent was obtained from the staff nurses.

Each day the investigator collected data from 4 to 5 staff nurses to assess the level of knowledge and practice regarding safe medication administration. A structured questionnaire was distributed to the staff nurses to assess the pre test level of knowledge and practice regarding safe medication administration among staff nurses. Then followed by a planned teaching programme on safe medication administration and drug calculations were educated to the staff nurses. A post test was conducted to assess the level of knowledge and practice with the same questionnaire provided in the pre test.

The frequency and percentage distribution of demographic variables, revealed that the age of staff nurses, 4(13.3%) were in the age group of 20 years, 15(50%) were in the age group of 21 years and 11(36.7%) were in the age group of above 22 years. Considering the sex of staff nurses, 2 (6.7%)were male and , 28(93.3%) were female staff nurses, regarding the education of staff nurses, 24(80%) have completed B.Sc nursing, 6(20%) have completed Diploma in nursing .Related to their religion 20(66.7%) were hindus,9(30%)were Christians,1(3.3%) was Muslim, related to the marital status of staff nurses 7(23.7%) were married, 23(76.7%) were unmarried. In accordance with the working unit, 15(50%) were working in ward, 11(36.7%) were working in ICU,4(13.3) were working in cathlab, regarding to the number of staffs working in one unit, 15(50%) were 5 staffs working in one unit, 1(3.3%)3 staffs were working in one unit, 14(46.7%) were 7 staffs were working in one unit. In concern with number of patient in the ward, 18(60%) were less than 15,12(40%) more than 15. With respect of nurse patient ratio, no staffs working in 1:7 ratio, 13(43.3%) were 1:5 ratio, 17(56.7%)were 1:3 ratio.

The findings of the study showed that in pretest 23(77%) of staff nurses had inadequate knowledge and 5(17%) of them had moderate knowledge and only 2(6%) of them had adequate knowledge where as in post test almost 20(67%) of them had adequate knowledge,10(33%) of them had moderate knowledge and none of the staff nurses had inadequate knowledge.

The findings of the study showed that in pretest level of practice on safe medication administration among staff nurses. In pretest 25(83%) of staff nurses had inadequate practice and only 5(17%) of them had adequate practice where as in posttest almost 28(94%) of them had adequate practice and only 2(6%) staff nurses had inadequate practice.

Analysis revealed that the paired't' test value of knowledge was 20.13 highly significant at the level of $p<0.001$. Thus it indicates the effectiveness of planned teaching programme and level of knowledge regarding safe medication administration among staff nurses. Analysis revealed that the paired't' test value of practice was 22.10 highly significant at the level of $p<0.001$. Thus it indicates the effectiveness of planned teaching programme and level of practice regarding safe medication administration among staff nurses.

The correlation coefficient of posttest level knowledge and practice was 1.002, it reveals there is positive correlation. It indicates the effectiveness of planned teaching programme on increasing the level of knowledge and practice regarding safe medication administration. The result of the study was discussed based on the objectives stated for the study.

The first objective was to assess the pre test level of knowledge and practice regarding safe medication administration among staff nurses.

In pre test level of knowledge 23(77%) of staff nurses had inadequate knowledge and 5(17%) of them had moderate knowledge and only 2(6%) of them had adequate knowledge, where as in the pretest level of practice 25(83%) of staff nurses had inadequate practice and only 5(17%) of them had adequate practice.

The study findings are consistent with the results of Azeim. A., et al (2010) who had conducted cross sectional survey to determine knowledge of medication administration among 388 staff nurse working in health clinic in Kassala, Eastern Sudan. The findings of the study showed that most of the staff nurses 342 (88.1%) were not having adequate knowledge about medication administration. Thus the current study showed a low level of knowledge about medication administration.

The other study findings were consistent with the results of John. M. S, (2011) had conducted a study to assess the practice regarding administering intramuscular injection among 60 staff nurses in outpatient department in selected hospitals of Mangalore Taluk. Analysis revealed that majority of the staff nurses (87%) had inadequate practice regarding administration intramuscular injection. The study concluded that most of the staff nurses had inadequate practice and they should be educated through video assisted teaching or through structured teaching programme in developing practice regarding medication administration.

The above literature concludes that the staff nurse had inadequate knowledge and practice regarding safe medication administration So the responsibility relies with the nurse to create knowledge and practice regarding safe medication administration.

The second objective was to assess the post test level of knowledge and practice regarding safe medication administration among staff nurses.

In post test level of knowledge almost 20(67%) of them had adequate knowledge,10 (33%) of them had moderate knowledge and none of the staff nurses had inadequate knowledge, where as in as in posttest level of practice almost 28(94%) of them had adequate practice and only 2 (6%) staff nurses had inadequate practice .

The study findings are consistent with the results of Sharma, S.,et al (2010)conducted a descriptive correlation study to assess the adequacy of practice of intramuscular injection among staff nurses. A sample consists of 80 staff nurses. The questions were constructed in one form of multiple choices and observational checklist. The statistical analysis says that Chi square was used as a test of significant. Significant was at $p<0.05$ for interpretation of results of tests of significant. Regression analysis test was used to show variables correlation. Correlation was significant at the 0.05. The study concluded that most of nursing staffs had adequate knowledge and skills regarding intramuscular injection.

The other study findings were consistent with the results of Bazarafshan,E., (2007) conducted a study to assess the knowledge regarding drug dosage calculation in children among staff nurses and nursing students in Medical college, Delhi. Descriptive cross sectional design and convenient sampling technique was followed which included 30 samples were used. The result showed 7(46.7%) had inadequate knowledge, 8(53.3%) had moderately adequate knowledge. Among nursing students 8(53.3%) had inadequate knowledge, 6(40%J) had moderately adequate knowledge and 1(6.7%) had adequate knowledge. The study concluded that staff nurses had adequate knowledge regarding drug dosage calculation.

The third objective was to find out the effectiveness of planned teaching programme on knowledge and practice regarding safe medication administration.

In the paired 't' test value of knowledge was 20.13 highly significant at the level of $p<0.001$. Thus it indicates the effectiveness of planned teaching programme and level of knowledge regarding safe medication administration among staff nurses. Analysis revealed that the paired 't' test value of practice was 22.10 highly significant at the level of $p<0.001$.

The study findings are consistent with the results of Rajendra, D., & Lamkhede, A., (2014) conducted a one group pre-test post-test study to assess effectiveness of planned teaching programme on knowledge of emergency drugs among staff nurses working in critical care units in selected hospital . 30 staff nurses were selected by convenient sampling method. Structured knowledge questionnaire used. The results showed that post-test mean knowledge score found higher 87.73% (43.67) and SD of 4.13, when compared with pre-test mean knowledge score value which was 52% (26) with SD of 6.98. The mean effectiveness score was 35.73% with SD of 2.80 .The study concluded that the planned teaching programme was an effective strategy for providing information and improving the knowledge of respondents.

The fourth objective was to find the correlation between posttest knowledge and practice regarding safe medication administration

In the correlation coefficient of posttest level knowledge and practice was 1.002, it reveals there is positive correlation .It indicates the effectiveness of planned teaching programme on increasing the level of knowledge and practice regarding safe medication administration.

The study findings are consistent with the results of Lakshika, M., et.al., (2005) conducted a comparative study to assess and compare the knowledge on pediatric emergency drugs and the calculation of drug doses among nursing students in selected colleges in Bangalore. The total sample size for the study was 100 final year Basic B.Sc. Nursing students with 50 students from colleges of nursing with own hospital and 50 students from colleges of nursing without own hospital.. It was found that the mean knowledge was the highest (61.2%) in the category of side effects of Pediatric emergency drugs and the lowest (33.17%) in the category of indications of Pediatric emergency drugs and the knowledge scores of final year Basic B.Sc. Nursing students of Colleges of Nursing with own hospitals was significantly different from those studying in the Colleges of Nursing without own hospital at 0.05 level. The study concluded that the final year Basic B.Sc. Nursing students had inadequate knowledge on Pediatric emergency drugs and the calculation of drug doses.

The fifth objective was to associate the pretest and posttest knowledge and practice regarding safe medication administration with the selected demographic variables of staff nurses

In the pre test level of knowledge and practice there was no significant association of the level of knowledge and practice regarding safe medication administration among staff nurses with any of their demographic variables such as age, sex, education, marital status. religion, working unit, number of staffs working in the ward, number of patients in the ward, nurse patient ratio in the ward.

In the post test level of knowledge and practice there was a significant association of the level of knowledge and practice regarding safe medication administration among staff nurses with their demographic variables such as in post level of knowledge educational status, working unit. The chi square value of 6.31 showed that there was a significant association of educational status and posttest level of knowledge after structured teaching programme at the level of $p<0.01$. With regard to the working unit chi square value of11.9 was significant at the interval of $p<0.01$.

In the post level of practice educational status. working unit and nurse patient ratio in the ward, and post test level of practice after structured teaching programme the chi square value of 10.03 showed that there was a significant association of educational status at the level of $p<0.01$. With regard to the working unit chi square value of 11.29 was significant at the interval of $p<0.01$. In concern with the nurse patient ratio chi square value of 10.5 was significant at the interval of $p<0.01$.

There was significant association was found in post test level of knowledge and practice regarding safe medication administration among staff nurses with their demographic variables such as education, working unit and nurse patient ratio in the ward except age, sex, marital status, religion, number of staffs working in the ward, and number of patient in the ward.

CHAPTER – VI

SUMMARY, CONCLUSION, NURSING IMPLICATIONS, RECOMMENDATION AND LIMITATIONS

The heart of the research project lies in reporting the findings of the study. This is the most creative part of the study. This chapter gives a brief account of the present study including the conclusion drawn from the findings, recommendations, limitations of the study, suggestions for the study and nursing implications.

SUMMARY

The Centers for Medicare and Medicaid Services and the Institute of Medicine (IOM) stated that he estimates of the incidence of such errors and evidence on the efficacy of various prevention strategies. The medication administration should be safe, effective, and appropriate use of medications in the major components of the medication-use system, addressing the use of prescription drugs, over the count drugs, and complementary and alternative medications, in a wide range of care settings like hospital, long-term, and community.

Medications are to diagnose, treat and prevent illness. They come in lots of different forms and take them in different ways. Drugs can be dangerous, though, even when they are meant to be improving our health. Taking them correctly and understanding the correctly and understanding the right way to administer them can reduce the risk.

Safe medication administration require through understanding the principles, guidelines, rights of administration, routes of administration, abbreviations used in administrations. Procedures followed during drug administration, drug calculations and complications of medication errors. Harm form of medication errors can arise from unintended consequences such as wrong medication, inadequate nursing education, patient safety and quality, excessive workload, fatigue, staffing system,

illegible handwriting, etc. Nurses are continually challenged to ensure that their patients receive the right medication at right time.

This study included assessment of level of knowledge and practice regarding safe medication administration such as principles, guidelines, rights, routes, frequencies, drug calculations and steps of procedure to be followed in safe medication administration

The objectives of the study were

1. To assess the pretest knowledge and practice regarding safe medication administration

2. To assess the posttest knowledge and practice regarding safe medication administration

3. To find out the effectiveness of planned teaching programme on knowledge and practice regarding safe medication administration

4. To find the correlation between posttest knowledge and practice regarding safe medication administration

5. To associate the pretest and posttest knowledge and practice regarding safe medication administration with the selected demographic variables of staff nurses

The focus of the study was to assess the effectiveness of planned teaching programme on knowledge and practice regarding safe medication administration among staff nurses. The formulated hypothesis of this study was that there is significant relationship between the planned teaching programme with the level of knowledge and practice regarding safe medication administration among staff nurses. The conceptual fame work developed for the study was based on the modifided wiedenbach's helping art of clinical nursing theory. An extensive review of literature, professional experience and expert's guidance helped the investigator to design the methodology.

The study was conducted by adopting a pre experimental one group pretest posttest design. The study was carried out with 30 samples who fulfilled the inclusion criteria. Purposive sampling technique was used to select the sample. The researcher introduced herself to the staff nurses and explained the purpose of the study to ensure better cooperation. Written consent was obtained from the staff nurses.

Each day the researcher collected data from 4 to 5 staff nurses to assess the level of knowledge and practice on safe medication administration. A structured questionnaire which consists of 30 multiple choice questions was distributed to the mothers to assess the pre test level of knowledge on safe medication administration and 20 steps of practice checklist used to assess the practice of safe mediction administration among staff nurses. Then followed by the pre test a planned teaching programme on safe medication administration and its practices were educated to the staff nurses. A post test was conducted to assess the level of knowledge and practice with the same questionnaire provided in the pre test.

The frequency and percentage distribution of demographic variables, revealed that the age of staff nurses, 4(13.3%) were in the age group of 20 years, 15(50%) were in the age group of 21 years and 11(36.7%) were in the age group of above 22 years. Considering the sex of staff nurses, 2(6.7%)were male and , 28(93.3%) were female staff nurses, regarding the education of staff nurses, 24(80%) have completed B.Sc nursing, 6(20%) have completed Diploma in nursing .Related to their religion 20(66.7%) were hindus, 9(30%) were Christians, 1(3.3%)was Muslim, related to the marital status of staff nurses 7(23.7%) were married, 23(76.7%) were unmarried. In accordance with the working unit, 15(50%) were working in the ward, 11(36.7%) were working in ICU, 4(13.3) were working in cathlab, regarding to the number of staffs working in one unit, 15(50%) were 5 staffs working in one, 1(3.3%) 3 staffs working in one unit, 14(46.7%) were 7 staffs working in one unit. In concern with number of patient in the ward, 18(60%) were less than 15, 12(40%) more than 15 .With respect of nurse patient ratio ,no staffs working in 1:7 ratio, 13 (43.3%) were 1:5 ratio, 17(56.7%) were 1:3 ratio.

The findings of the study showed that in in pre test 23(77%) of staff nurses had inadequate knowledge and 5(17%) of them had moderate knowledge and only 2(6%) of them had adequate knowledge where as in post test no staff nurses had inadequate knowledge and 10(33%) of them had moderate knowledge and almost 20(67%) of them had adequate knowledge.

The findings of the study showed that in pretest level of practice on safe medication administration among staff nurses. In pretest 25(83%) of staff nurses had inadequate practice and only 5(17%) of them had adequate practice where as in posttest almost 28(94%) of them had adequate practice and only 2(6%) staff nurses had inadequate practice.

The analysis revealed that the mean score was increased from 9.8 to 20.2 which showed a marked difference of 10.4 respectively and the standard deviation was decreased from 3.31to 1.85 after the administration of planned teaching programme. The paired 't' test value at 22.10, was very highly significant at $p<0.001$ level. The correlation coefficient of posttest level of knowledge and practice was 1.002, it reveals there is positive correlation. It indicates the effectiveness of planned teaching programme on increasing the level of practice on safe medication administration among staff nurses.

CONCLUSION

From this study the researcher found that the staff nurses have gained knowledge regarding safe medication administration and this study was done to assess the effectiveness of the planned teaching programme on knowledge and practice regarding safe medication administration among staff nurses.

Thus, it is the responsibility of a health care provider to create awareness about the safe medication administration in clinical as well as in community settings. The result of this study shows there is an improvement of knowledge and practice on safe medication administration after the planned teaching programme. Hence the null hypothesis was accepted.

NURSING IMPLICATIONS

The present study emphasized on knowledge and practice regarding safe medication administration among staff nurses.

Nursing practice

Health education is an important aspect of nursing practice. For effective health education the nurses should gain an understanding of staff nurses' knowledge and practice about safe medication administration during their administration to the patient. Thus the educative role of the nurses could be implemented in the nursing practice.

The commonly occurring medication errors and reduce the complication of medication error will enlighten the clinical nursing practice to design and formulate mass health education programme. The nurse should be equipped with up to date knowledge and practice of safe medication administration to their clinical practice.

Nursing Education

The curriculum is responsible for preparing the future nurses with more emphasis on preventive and promotive health practices. The result of the study emphasizes the need for correlating the concepts in order to understand and advice on safe medication administration. Thus the nurses who follow these measures in a holistic manner will be able to provide comprehensive care to the patients. The nursing students should be given an opportunity to find out the medication errors and patient safety. Students should take a positive step to impart education in the clinical setting during their study period. In service education programmes, workshops and seminars have to be conducted to meet the health challenges.

Nursing administration

The nursing administrator who is the member in the planning committee must provide suggestions to have interdepartmental, intradepartmental and extra departmental communication for the development of design and layout a practice of

clinical nurse. The nurse administrator should take interest in disseminating the information through instructional materials such as pamphlets, posters, modules that impart health information to the staff nurses. The health education cell in the nursing service department can be facilitated by the data obtained from the study.

Nursing research

Research should be done on all medication administration, identify the practices and interventions related to medication error. The researcher may have to take up a role in preparing the staff nurses regarding safe medication administration which includes drug calculations and steps of practices through scientific rational and facts from critical reasoning. The nurse researcher can narrow down the present research topic into more precise and clear as safe medication administration in a specific body system affects both the mother and fetus can be studied.

RECOMMENDATIONS

- A similar study can be replicated on a larger sample.
- An evaluative study may be conducted to investigate the complication of medication error on wellbeing of the patient.
- A study needs to be carried out in the community nurse and clinical nurse to find out the difference in knowledge.
- A comparative study can be carried out between staff nurses and nursing students.

LIMITATIONS

The researcher was unable to take larger samples for the study due to time constraints.

REFERENCES

BOOKS

- Ansari. J.,.(2001). *Clinical record book for fundamentals of nursing*.(1st ed) .P.V publications.
- Basavanthappa. B. T. *Nursing research*. (2nd ed.). New Delhi, Jaypee brothers publication.
- Chandan. B., (2002). *Nurses responsibility in drug administration*. (5th ed). Health and Science publications.
- Dewit. R., (2000). *Fundamental concepts and skills for nursing*. (3rd ed). Elsevier Churchill Livingstone publication.
- Erb's, K.,.(1996). *Fundamental of nursing* .(9th ed). New Delhi, Jaypee brothers publication
- Florence. E., (2012). *Routes of drug administration*. (7th ed). Butterworth-Heinemann publications.
- Hazel, H., (2001) *Potter and Perry's Foundations in Nursing Theory and Practice*.(7th ed) Elsevier Churchill Livingstone publication.
- Hockenberry, M.J., (2007).*Essentials of pediatric nursing*. (7th ed.). Mosby publications.
- Jacob, A., et.al.,(2000). *Clinical nursing procedures:The art of nursing practice*.(3rd ed) Jaypee brothers publcations,Newdelhi.
- Jonas, L., et.al., (2005). *Complementary and Alternative Medicine*.(10th ed). Elsevier Churchill Livingstone publication.
- Judith L.(2010). *Medication administration procedures*. (11th ed). Elsevier Churchill Livingstone publication.
- Kluwer, W., (2008). *Nursing procedures*.(7th ed). Philadelphia, Lippincott publications.

- LeGrand, S .B.,(2002). *Therapeutic role of suppositories and rectal suspensions*. (11th ed). Mosby publications.
- Mohammad, A., (2009) Medication administration.(11th ed). Philadelphia, Lippincott publications.
- Myers, J., (2000). *Quick medication administration*.(9th ed).Mosby publications
- Naariyong. S., et al.,(2012) *Nursing drug card* (21st ed). Elsevier Churchill Livingstone publication.
- Padmaja, A., (2005).*Peadiatric nursing procedure manual*.(2nd ed). Philadelphia, Lippincott publications.
- Perry, P., (2004).*Fundamentals of nursing*. (3rd ed) .Elsevier Churchill Livingstone publication.
- Polit. D. F., & Hungler. B. P., (2008). *Nursing research principles and methods*. (6thed.). Philadelphia, Lippincott publications.
- Rang, H. P., (2007). *Rang and Dale's Pharmacology.* (1st ed). Elsevier Churchill Livingstone publication.
- Rinaldi. D., (1995). *Qualitative research in nursing*. (1sted). Lippincott company publications.
- Robert. P., (2007). *Medication administration handbook*. (8th ed). Vora publishers, Newdelhi
- Satoskar,R.S., et.al.,(2005). *Pharmacology& pharmocotherapeutics*. (19th ed) Noida: Popular Prakashan Pvt. Ltd.
- Sharma,R.,(1993). Methodology of educational research, (5th ed), Vora publishers, Newdelhi
- Sue, C., (2004). *Fundamentals of nursing*. (4th ed). Philadelphia, Lippincott publications.

- Sundar, R., (1985). *The introduction of Bio Statistics*. (4th ed) Orient Longman Publications.
- Tatro, S.D., (2003). *A-Z drug fact.* (4th ed). Maryland publications.
- Taylor, L., & Lemone, L., (2011).*The art and science of nursing*, (7th ed), Lippincott Williams and Wilkins publications..
- Wesley, L., (1995). *Nursing theories and Models*.(2nd ed). Spring house corporation publishers.

JOURNALS

- Anderson, T., (2011) Promoting and Regulating Safe *Medication Administration, Journal of Nursing Regulation.* vol -(2),170-172
- Bernius, M.,(2008). Prevention of pediatric drug calculation errors by pre hospital care providers. *Journal of national association of EMS physicians and national association of state EMS directors*. Oct-Dec. p. 486-94.
- Biron, A.D., (2009).Characteristics of work interruptions during medication administration. *Journal of nursing Scholarship.* . p. 330-6
- Cecily, A., (2010A). comparative study to assess the knowledge of final year B.Sc nursing. *The Nursing Journal of India*.
- Choo, J., (2010). Nurses' role in medication safety. *The journal of nursing management*, vol 18 853-855.
- Davis, L., .(2009). Evaluation of contextual influences on the medication administration practice of pediatric nurses. *Journal of Advanced Nursing*. Jun. P. 1293-96.
- Desiree, L.K,. (2008). Preventable medication-related events in hospitalized children in New Zealand. *Journal of New Zealand medical association*.18 April. p:56-78.
- Devi, M.H., (2011) Effectiveness of Self- Instructional Module on selected cardiac emergency drugs for the nursing personnel working in critical care unit. *Asian Journal of Cardiovascular Nursing ;*19(1):7-10.

- Elganzouri, E.S., . (2009). Medication Administration Time Study (MATS): nursing staff performance of medication administration. *Journal of Nursing Administration*. May. P. 204-10.

- Fleming, S., (2012). Factors that contribute to medication errors in nursing practice. *The journal of nursing management.* vol 17 679-682.

- Griffiths, M.,(2013). Medicines management. *The journal of nursing standards.*vol-28 45-56.

- Gladstone, R., (2000). Medication errors. *International journal for quality in health care* vol 5 24-26.

- Hsaio, Y.G., (2000). Nurses knowledge of high-alert medication. *Journal of Advanced Nursing* 2010;1.

- Manias, E., (2007). How graduate nurses use protocols to manage patients' medications. *Journal of clinical Nursing*. July. p. 1382-4.

- Mark, B., (2003). Professional nursing practice of drug administration. *The journal of nursing administration*. vol 33 224-235.

- Mary, A., (2007). Preventing Medication Errors. *The American journal of nursing. vol 24 189-190.*

- Niemi, P.H., (2005). Finnish nurses' & nursing students' pharmacological skills. *Journal of Clinical Nursing* ;14; 685-94.

- Patanwala, A.E., (2010). A prospective observational study of medication errors in a tertiary care emergency department. *Journal of Emergency Medicine*. June. p. 522-6.

- Poon, E.G., (2010). The Safety of Medication Administration. *The New England Journal of Medicine. vol-23. 145-148.*

- Ronda, G., (2007). To Err Is Human: Building a Safer Health System. *Journal of Medicine.* vol 34 166-168.

- Schelbred, R., (2007). Nurses' experiences of drug administration errors. *Journal of Advanced Nursing*. 60(3):317–324.

- Selbst, S.M,. (1999). Medication errors in pediatric emergency care. *Journal of nursing*. Feb Vol 15(1):1-9.
- 'Shea, E., (2011). Factors contributing to medication errors: a literature review. *The journal of clinical nursing*. vol 8 496-500
- Sheu, J.S,. (2007). Nurses relate the contributing factors involved in medication errors. *Journal of Critical Nursing.* ;16(3);447-57.
- Smeulers, M., (2015) *Jouranl of Nursing Care Quality.* vol -5. 56-60
- Stratton, K.M., (2004). Reporting of medication errors by pediatric nurses. *Journal of Pediatric Nursing*. Dec. p. 385-92
- Tissot, E., (1999). Medication errors at the administration stage in an intensive care unit. *Journalof intensive care medicine*. April. p. 353-9.
- Webster, C., (2013). A systems approach to the reduction of medication error on the hospital ward. *The journal of advance nursing practice*. vol-35 34-41
- Zarqa, K., (2000). *Journal of Nursing Management*; 15(6):659-70.

NET REFERENCES

- http://www.providersedge.com/ehdocs/ehr_articles/To_Err_Is_Human_%20Building_a_Safer_Health_System-exec_summary.pdf
- http://www.auditcommission.gov.uk/SiteCollectionDocuments/AuditCommissionReports/NationalStudies/brspoonfulsugar.pdf
- http://www.tjcha.org.tw/Institute for Safe medication practices 4.http://www.ismp.org/MSAarricles/highalert.htm
- http://www.ncbi.nlm.nih.gov/pubmed/19374672
- :http://www.sciencedirect.com/science
- www.journalofnursingregulation.com/article
- https://correctionalnurse.net/8-medication-rights
- https://www.researchgate.net/

APPENDIX-A

PART-I

DEMOGRAPHIC VARIABLES

1. Age in years

a) 20 yrs
b) 21 yrs
c) 22yrs and above

2. Sex

a) Male
b) Female

3. Education

a) B.Sc Nursing
b) Diploma in Nursing

4. Religion

a) hindu
b) Christian
c) muslim

5. Marital status

a) married
b) unmarried

6. Working unit

a) ward
b) ICU
c) cath lab

7. Number of staffs working in the ward

a) 5
b) 3
c) 7

8. Number of patients in the ward

a) less than 15
b) more than 15

9. Nurse patient ratio in the ward

a) 1:7
b) 1:5
c) 1:3

PART – II

KNOWLEDGE REGARDING SAFE MEDICATION ADMINISTRATION AMONG STAFF NURSES

1. What is the definition of medication administration?

a) To remove waste from the body
b) To diagnose, treat, or prevent illness
c) To maintain disease process in the body

2. Who prescribes the medications?

a) Nursing supervisors
b) Administrator
c) Physician

3. Which one is the principle of medication administration?

a) know the indications of drugs
b) know the nursing orders
c) know the protocol

4. Which is the principle to be followed while giving pediatric dose?

a) calculate age
b) calculate height
c) calculate age and weight

5. Which is the guideline to be followed during medication administration?

a) Assessment
b) Investigation
c) Physical examination

6. Which type of drug name indicates Aspirin?

a) chemical name
b) generic name
c) trade name

7. Which is the factor that affects the safe medication administration?

a) Maintain the protocol
b) Follow the physician order
c) Doing 2 things at once

8. How many times will you check for the right drug before administration?

a) 3 check
b) 2check
c) 1 check

9. Which of the right the nurse should ensure, while giving medication by using motor and pedestal?

a) Right route
b) Right time
c) Right drug

10. When should the right documentation of medication be done?

a) Before administration
b) After administration
c) At the time of prescription

11. What is the meaning of enteric route of administration?

a) Directly to nasal
b) Directly to stomach
c) Directly to oral

12. What is the meaning for p.r.n?

a) Midday
b) Twice a day
c) When required when necessary

13. Which schedule should the Morphine be categorized?

a) Schedule I
b) Schedule II
c) Schedule V

14. Which site is used to administer medication by sublingual?

a) By mouth
b) By rectum
c) Below the tongue

15. Which type of medication is absorbed easily by gastric tube administration?

a) Tablets
b) Liquid medications
c) Suppositories

16. How much ml of water is diluted with medication through gastric tube administration?

a) 15-30ml of water
b) 5-10ml of water
c) No need for dilutions

17. Which position is appropriate for rectal route of administration?

a) Supine position
b) Left lateral position
c) Right lateral position

18. Which type of injection is deposit in the muscle?

a) Intramuscular injection
b) Intravenous injection
c) Intradermal injection

19. Which muscle is commonly used during immunization for children?

a) Deltoid
b) Vastus lateralis
c) Ventrogluteal

20. What is the adverse reaction of Intravenous infusion?

a) Redness and Swelling
b) Palpitation
c) Headache

KNOWLEDGE REGARDING DRUG CALCULATIONS

21. What is the equalant of 1 gm.?

a) 1000 milligram
b) 1000 milliliter
c) 1000 microgram

22. The patient is prescribed 0.0625mg Digoxin. How many micrograms is this?

a) 62.5mcg
b) 6.25mcg
c) 0.625mcg

23. The physician advice T. Amoxy 500mg p/o BD .The available strength is 250mg.How many tablets the nurse can administer?

a) 3
b) 2
c) 1

24. The physician order 300mg of Paracetamol to child. The available suspension is 120mg in 5ml. How much ml the nurse has to administer?

a) 10ml
b) 5ml
c) 12.5ml

25. The physician order 6mg of Morphine sulphate every 3 hrs for postoperative pain .The dose available is 15mg/1ml. How much solution the nurse has to administer?

a) 1.5ml
b) 1.3ml
c) 2.5ml

26. The child required T. Amoxy 4mg /kg body weight, the child weight is 5kg . How much mg of drug the nurse has to take?

a) 10mg
b) 20mg
c) 5mg

27. The physician order 1000 ml of Glucose 5% for 8hrs.How many mi/hr the nurse has to administer?

a) 100ml/hr
b) 125ml/hr
c) 50ml/hr

28. The doctor prescribed 500 ml of NS for 5 hrs .How many drops /mt needed?

a) 10d/mt
b) 20d/mt
c) 25d/mt

29. A patient prescribed 20 gm of Glucose to be given as Glucose 50% injection. How much ml do you give?

a) 10ml
b) 40ml
c) 20ml

30. A women weighing 40 kg needs Doputamine at 5mcg/kg/ml. The stock available is 500mg in 500ml of Glucose 5%. What is the required rate of administration of ml/hr?

a) 10ml/hr
b) 25ml/hr
c) 12ml/hr

PART-II

PRACTICE CHECKLIST REGARDING SAFE MEDICATION ADMINISTRATION

S.NO	PROCEDURE	YES	NO
1	Be vigilant when preparing medications.		
2	Check for allergies.		
3	Use identification of two patients		
4	Assess the patient before medication administration.		
5	Be diligent in all medication calculations		
6	Use checklists while administering medications		
7	Communicate with patient before and after administration.		
8	Avoid the workarounds.		
9	Check the expiry date of medication		
10	Check the 10 rights before administering		
11	Check the route of medication administration		
12	Check the medications 3 times before administering		
13	Check the side effects, indication and contraindication of medications		
14	Check the frequency of administration		
15	Perform hand hygiene		
16	Arrange all equipment properly		
17	Maintain appropriate position		
18	Administer the drug prescribed		
19	Stay with the patient until any signs of adverse reactions		
20	Document after administering medications		

ANSWER KEY

Question	Answer	Question	Answer
1	b	16	a
2	c	17	b
3	a	18	a
4	c	19	b
5	a	20	a
6	b	21	a
7	c	22	b
8	a	23	b
9	a	24	c
10	b	25	c
11	b	26	b
12	c	27	b
13	b	28	c
14	c	29	b
15	b	30	c

APPENDIX-B

Letter seeking consent of the subjects for the participants in the research study

I am voluntarily willing to participate in the study conducted by Ms.P.Theresa Arockia Mary on A Study to assess the effectiveness of planned teaching programme on knowledge and practice regarding safe medication administration among staff nurses working at selected hospital at Chennai. I will also co-operate with the researcher in providing necessary information. I was explained that the information provided would be kept in confidential and used only for above mentioned study purpose.

Signature of the investigator **Signature of the Staff nurse**

Place: Place:

Date : Date :

APPENDIX - C

MADHA
MOTHER'S CARE
COLLEGE OF NURSING

(Approved by Govt. of Tamil Nadu &
Affiliated to the Tamil Nadu Dr. M.G.R. Medical University,
Recognised by the Tamil Nadu Nurses and Midwives Council &
Approved by Indian Nursing Council, New Delhi)

Madha Nagar, Somangalam Road, Kunrathur, Chennai - 600 069. Phone : 2478 0736 / 34 / 32, Fax : 2478 0798
E - mail : mcon98@gmail.com Website : www.madhcollegeofnursing.com

Date: 24.11.2016

From

The Principal,
Madha College of Nursing,
Kunrathur,
Chennai – 69.

To

The Medical Director,
Billroth Hospitals,
Shenoy Nagar,
Chennai – 30.

Respected Sir/Madam,

Sub: MCON – Permission to carry out project – Billroth Hospitals, Chennai – Ms. Theresa Arockia Mary. P, M.Sc. (N) Student – Requested – regarding.

This is to bring to your kind information that our M.Sc. Nursing students have to carry out a project during their course of study as a partial fulfillment of M.Sc. Nursing curriculum.

In regard to this, we would be highly grateful to you if you could accord permission for Ms. Theresa Arockia Mary.P, II year M. Sc. (N) student of our college to carry out her project work in your esteemed hospital, during the period of 30 days during December 2016. The title of the project is **"A study to assess the effectiveness of Planned Teaching Programme on Knowledge and Practice regarding Safe Medication Administration among staff nurses working in selected Hospital at Chennai"**

Kindly permit her to do the project. I assure you that her study will not interfere with the morale of patients and health care providers. The anonymity of the information will be kept confidential.

Thanking you,

Sincerely,

Permitted

BILLROTH HOSPITALS LIMITED CHENNAI-600 010

23/11/16

PRINCIPAL
MADHA COLLEGE OF NURSING
MADHA NAGAR, KUNDRATHUR,
CHENNAI - 600 069
PHONE : 24780736

APPENDIX - D

LIST OF EXPERTS FOR CONTENT VALIDIDY

Prof. Mrs. HEMA SURESH
R.N.,R.M.,M. Sc.(N),
Principal,
Faculty of nursing,
Dr.M.G.R Educational and Research institute,
Chennai-95

Prof. Mrs. N. JAYASRI
R.N., R.M.,M.Sc.(N).,M.Phil.
Principal,
Miot College of nursing,
Chennai-89.

CERTIFICATION FOR CONTENT VALIDITY

This is to certify that the content and the tool to the statement of the problem **"A study to assess the effectiveness of PLANNED TEACHING PROGRAMME on knowledge and practice regarding SAFE MEDICATION ADMINISTRATION among staff nurses working in selected Hospital at Chennai"** prepared by **Mrs. THERESA AROCKIAMARY.P, M.Sc (N)** student currently pursuing her M.Sc (N) degree programme for the partial fulfillment of his dissertation at **Madha College of Nursing, Kunrathur, Chennai – 69** is found to be valid to the best of my knowledge.

Prof. Mrs. N. JAYASRI,
M.Sc.,(N), M.Phil.,Ph.D.,
PRINCIPAL
MIOT COLLEGE OF NURSING
4/112, Mount Poonamallee Road,
Manapakkam, Chennai-600 089.

CERTIFICATION FOR CONTENT VALIDITY

This is to certify that the content and the tool to the statement of the problem **"A study to assess the effectiveness of PLANNED TEACHING PROGRAMME on knowledge and practice regarding SAFE MEDICATION ADMINISTRATION among staff nurses working in selected Hospital at Chennai"** prepared by **Mrs. THERESA AROCKIAMARY.P, M.Sc (N)** student currently pursuing her M.Sc (N) degree programme for the partial fulfillment of his dissertation at **Madha College of Nursing, Kunrathur, Chennai – 69** is found to be valid to the best of my knowledge.

Dr M.G.R Educational and Research Institute University
Faculty of Nursing
Chennai.
Date:.....

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FACULTY OF NURSING
Dr M G.R
EDUCATIONAL AND RESEARCH INSTITUTE
UNIVERSITY
(DECL U/S 3 OF UGC ACT 1956)
CHENNAI-95.

APPENDIX - E

CERTIFICATE FOR ENGLISH EDITING

TO WHOMSOEVER IT MAY CONCERN

This is to certify that that the dissertation "**A study to assess the effectiveness of planned teaching programme on knowledge and practice regarding safe medication administration among staff nurses working in selected hospital at Chennai"** prepared by Ms. Theresa Arockia Mary.P II year M.Sc. (N) student of Madha college of nursing, Kunrathur, Chennai-69,is edited for English language appropriateness

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APPENDIX - F

CERTIFICATE OF ETHICAL CLEARANCE

MADHA COLLEGE OF NURSING
ETHICAL COMMITTEE

College Campus :

Madha nagar,

Somangalam road,

Chairman of Committee:

Dr. S. Madan Kumar. M.D., Dip. A & E
Director,
Madha Medical College & Research Institute, Thandalam.

Members:

Dr. K. Gajendran. M.D., D.V.,
Principal,
Madha Medical College & Research Institute, Thandalam.

Dr. A. Dhanikachalam. M.S., Mch
Medical Superintendent,
Madha General Hospital,
Madha Medical College & Hospital,
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Dr. V. Vijai Krishna. M.P.T,
Principal,
Madha College of Physiotherapy,
Kunrathur

Dr. B.Tamilarasi,
M.Sc (N), M.Phil., P.hD.,
Principal,
Madha College of Nursing, Kunrathur

Mrs. Grace Samuel, M.Sc (N),
Vice Principal,
Madha College of nursing, Kunrathur

Date: 09.06.2016

CERTIFICATE OF ETHICAL CLEARANCE

This is to certify that the research proposal, **"Effectiveness of planned teaching programme on safe medication administration among staff nurses working at selected hospital at Chennai",** submitted by Mrs. Theresa Arockia Mary. P student of I year M.Sc. Nursing (Medical Surgical Nursing) is hereby approved and granted ethical clearance by the Ethical Committee of the institution.

This clearance is valid for the period of 2 years.

SAFE MEDICATION ADMINISTRATION

SKELETAL PLAN ON SAFE MEDICATION ADMINISTRATION

Sl. No	Behavioral objective	content	Teaching activity	learning activity	Audio visual aids
1	Define the safe medication administration	Medication administration is defined as preparing, giving and evaluating the effectiveness of prescription and non-prescription drugs.	Explaining	Listening	Booklet
2	List the principles of safe medication administration	1.Essential information about each drug: 2. Interpret prescribed orders accurately 3. Examine drug labels 4.Accurately calculate dosages 5.Take great care when administering drugs to children	Explaining	Listening	powerpoint
3	Tell about the types of names of drugs	Drugs can have three types of names a. chemical b. generic c. trade/brand/proprietary	Explaining	Listening	whiteboard
4	Detail the factors contributing the medication administration	For patient for faculties	Explaining	Listening	powerpoint
5	Explain the rights of drug administration	There are 10 rights to checked before administering the medication • Right DRUG • Right DOSE • Right ROUTE • Right TIME • Right PATIENT • Right DOCUMENTATION	Explaining	Listening	poster

Sl. No	Behavioral objective	content	Teaching activity	learning activity	Audio visual aids
		• Right to KNOW • Right to REFUSE • Right to REASON • Right to RESPONSE			
6	Mention the route of drug administration	• oral route: • rectal route: • intravenous route: • infusion: • intramuscular route: • enteric:	Explaining	Listening	powerpoint
7	Enumerate the procedure of medication administration	• Medication by mouth • Medication by mouth • Medication administered rectally • Medication administer by intramuscular injections • Medication administer by intradermal and subcutaneous injection • Medications administer by intravenously	Explaining	Listening	powerpoint
8	calculate the drug calculations for safe medication administration	• Converting Units • Tablet/capsule calculations • Liquid Medication Calculations • Mg/kg calculations • Drip Rate Infusion Calculations • Percentage Calculations • Microgram/kg/min calculations	Explaining	Listening	Booklet

COURSE	:	M.SC (N) 1 YEAR
SUBJECT	:	RESEARCH
UNIT	:	
TOPIC	:	SAFE MEDICATION ADMINISTRATION
GROUP	:	NURSING STAFFS
CLASSROOM	:	BILLROTH AUDITORIUM
DATE	:	
TIME	:	45 MTS
NAME OF THE EVALUATOR	:	DR.B .TAMILARASI
NAME OF THE STUDENT TEACHER	:	P.THERESA AROCKIA MARY
TEACHING METHODS	:	LECTURER CUM DISCUSSION
TEACHING MATERIALS	:	WHITE BOARD, LCD, PAMPHLET,

CENTRAL OBJECTIVE: The Staff nurses will gain adequate knowledge regarding safe medication administration and develop attitude towards it and practice the medication administration and drug calculation procedure in clinical settings.

BEHAVIOURAL OBJECTIVES:

At the end of the teaching the student will be able to

- define safe medication administration
- list the principles of safe medication administration
- enlist the guidelines of safe medication administration
- tell the types of names of drugs
- detail the factors contributing the safe medication administration
- explain the rights of safe medication administration
- mention the route of safe medication administration
- list the control schedule of medications safe medication administration
- enumerate the procedure of safe medication administration
- calculate the drug calculations of safe medication administration

INTRODUCTION

I am Theresa Arockia Mary studying M.Sc. (N) 1 year in Madha College of nursing. Today I am going to take class about the nursing care procedure related to safe medication administration and drug calculations. Medication transferred in to body tissue in one of three ways:(1)by ingestion and absorption in the digestive tract (2)by passive transfer to porous tissue such as skin alveoli and lung sand the mucous membrane:(3)by insertion directly into the interior tissue via subcutaneous, intramuscular or intrathecal or intravenous infusion. The central goal of nursing is to enable nurses to provide medications to safely and appropriately using the route of best suited for administration.

Sl. No	Behavioral Objective	Content	Time	Teacher's Activity	Learner Activity	A.V. Aids
1	Define the safe medication administration	Medication administration is defined as preparing, giving and evaluating the effectiveness of prescription and non-prescription drugs. Medications administrations to diagnose, treat, or prevent illness. Drugs are potentially dangerous, even if they are meant to improve our health. It is important that to take any and all medications correctly, always following the doctor's instructions.	2mts	teaching	listening	whiteboard
2	List the principles of safe medication administration	General principles 1.Essential information about each drug: • indications for use • contraindications • therapeutic effects • adverse effects • specific administration instructions 2. Interpret prescribed orders accurately • drug name • dose • frequency of administration 3. Examine drug labels • drug name • concentration (mg/tablet, capsule or mL soln) 4. Accurately calculate dosages • ask a colleague to check • ask colleague to do calculations then compare the results	5mts	teaching	listening	LCD

Sl. No	Behavioral Objective	Content		Time	Teacher's Activity	Learner Activity	A.V. Aids
		5. Seek information regarding patient's medical diagnosis and condition in relation to drug administration • ability to swallow po meds • allergies • contraindications • new signs or symptoms which may indicate adverse effects of administration. Heart, liver or kidney disorders may interfere with pt.'s ability to eliminate drugs from the body. • Verify client identity before administering medication to the patient 6. Omit or delay doses as indicated by the client's condition • report and document omissions appropriately 7. Take great care when administering drugs to children • high risk of medication errors due to changes in weight and age eg 2 kgs to 100+ • most drugs have not been tested in children many drugs are marked in dosage forms and concentrations suitable for adults therefore this requires dilution, calculation, preparation and administration of very small doses					
4	Enlist the guidelines of safe medication administration	Guidelines for Safe Medication Administration		3mts	explaining	listening	LCD
		Principle	**Additional Information**				
		Be vigilant when preparing medications.	Avoid distractions. Some agencies have a **no-interruption zone (NIZ)**, where health care providers can prepare medications without interruptions.				
		Check for allergies.	Always ask patient about allergies, types of reactions, and severity of reactions.				

Sl. No	Behavioral Objective	Content		Time	Teacher's Activity	Learner Activity	A.V. Aids
		Use two patient identifiers at all times. Always follow agency policy for patient identification.	Use at least two patient identifiers before administration *and* compare against the MAR.				
		Assessment comes before medication administration.	All medications require an assessment (review of lab values, pain, respiratory assessment, cardiac assessment, etc.) prior to medication administration to ensure the patient is receiving the correct medication for the correct reason.				
		Be diligent in all medication calculations.	Errors in medication calculations have contributed to dosage errors, especially when adjusting or titrating dosages.				
		Avoid reliance on memory; use checklists and memory aids.	Slips in memory are caused by lack of attention, fatigue, distractions. Mistakes are often referred to as attentional behaviours where lack of training or knowledge is the cause of the error. Slips account for most errors in heath care. If possible, follow a standard list of steps for every patient.				
		Communicate with your patient before and after administration.	Provide information to patient about the medication before administering it. Answer questions regarding usage, dose, and special considerations. Give the patient an opportunity to ask questions. Include family members if appropriate.				
		Avoid workarounds.	A **workaround** is a process that bypasses a procedure, policy, or problem in a system. For example, a nurse may "borrow" a medication from another				

Sl. No	Behavioral Objective	Content		Time	Teacher's Activity	Learner Activity	A.V. Aids
			patient while waiting for an order to be filled by the pharmacy. These workarounds fail to follow agency policy to ensure safe medication practices.				
		Ensure medication has not expired.	Medication may be inactive if expired.				
		Always clarify an order or procedure that is unclear.	Always ask for help whenever you are uncertain or unclear about an order. Consult with the pharmacist, charge nurse, or other health care providers and be sure to resolve all questions before proceeding with medication administration.				
		Use available technology to administer medications.	Bar-code scanning (eMAR) has decreased errors in administration by 51%, and computerized physician orders have decreased errors by 81%. Technology has the potential to help decrease errors. Use technology when administering medications but be aware of technology-induced errors.				
		Report all near misses, errors, and adverse reactions.	Reporting allows for analysis and identification of potential errors, which can lead to improvements and sharing of information for safer patient care.				
		Be alert to error-prone situations and high-alert medications.	**High-alert medications** are those that are most likely to cause significant harm, even when used as intended. The most common high-alert medications are anticoagulants, narcotics and opiates, insulin, and sedatives. The types of harm most commonly associated with these				

Sl. No	Behavioral Objective	Content		Time	Teacher's Activity	Learner Activity	A.V. Aids
			medications include hypotension, delirium, bleeding, hypoglycemia, bradycardia, and lethargy.				
		If a patient questions or expresses concern about a medication, stop and do not administer it.	If a patient questions a medication, stop and explore the patient's concerns, review the physician's order, and, if necessary, notify the practitioner in charge of the patient.				
	Tell about the types of names of drugs	Drugs can have three types of names a. chemical b. generic c. trade/brand/proprietary a.Chemical name: - a very precise description of the drug's chemical composition, identifying the drug's atomic and molecular structure. This name is of significance to the pharmacist. b.Generic name: The name assigned by the manufacturer who first develops the drug. Often the generic name is derived from the chemical name. The official name is the name by which the drug is identified in the official publication. c.Trade/ Brand/ Proprietary name: It is selected by the drug company selling the drug and is copyrighted .A drug can have several trade names when produced by different manufacturers ***e.g. Chemical name= Acetylsalicylic acid*** ***Generic name = Aspirin*** ***Trade names include As pro, Disprin***		1mt	explaining	listening	Whiteboard

Sl. No	Behavioral Objective	Content	Time	Teacher's Activity	Learner Activity	A.V. Aids
	Detail the factors contributing the medication administration	For patient • patients on multiple medications • patients with another condition, e.g. renal impairment, pregnancy • patients who cannot communicate well • patients who have more than one doctor • patients who do not take an active role in their own medication use • children and babies (dose calculations required) for faculties • inexperience • rushing • doing two things at once • interruptions • fatigue, boredom, being on "automatic pilot" leading to failure to check and double-check • lack of checking and double checking habits • poor teamwork and/or communication between colleagues • reluctance to use memory aids	2mts	explaining	listening	LCD
	Explain the rights of drug administration	There are 10 rights to checked before administering the medication • Right DRUG • Right DOSE • Right ROUTE • Right TIME • Right PATIENT • Right DOCUMENTATION • Right to KNOW • Right to REFUSE • Right to REASON • Right to RESPONSE				

Sl. No	Behavioral Objective	Content	Time	Teacher's Activity	Learner Activity	A.V. Aids
		RIGHT DRUG Each time when give a medication, remember to do the **"Three Checks".** This means that you are going to do a **"triple-check"** to make sure that the six rights are present each time that you give a medication. **1.** Remove the medication from the locked area and check the prescription label against the medication log to make sure that they match: **this is the 1st check.** **2.** Before pouring the medication, check the prescription label against the medication order to make sure that they match: **this is the 2nd check.** **3.** After you pour the medication, but before you give it, check the prescription label against the medication log entry again to make sure that they match: **this is the 3rd check.** **RIGHT INDIVIDUAL** In order to make sure that about to administer medications to the right individual, have to know the individual. **RIGHT MEDICATION** • Read the medication label carefully (remember that some medications have more than one name: a brand name and at least one generic name). • Check the spelling of the medication carefully. If there is any doubt about whether the medication name is correct, stop and call the nurse or the pharmacist before give the medication. • Read the medication order carefully. Make sure that the medication name on the order matches the medication name on the label. • Read the medication log carefully. Make sure that the medication name on the label, the medication order and medication log match **before** giving the medication.	3mts	explaining	listening	LCD

Sl. No	Behavioral Objective	Content	Time	Teacher's Activity	Learner Activity	A.V. Aids
		• Look at the medication. If there is anything different about the size, shape • Look at the medication. If there is anything different about the size, shape or color of the medication, call the pharmacist **before** you give it. It could be that you have been given a different generic brand of the medication. But sometimes when a medication looks different it means that you have the wrong medication. **RIGHT DOSE** • The right dose is **how much** of the medication are supposed to give the individual at one time. • To determine the dose, need to know the **strength** of each medication. In the case of liquid medications, you need to know the strength of the medication in each liquid measure. • The dose equals the strength of the medication multiplied by the amount. **RIGHT TIME** • Some medications must be administered only at very specific times of the day. For other medications, the time of day that you give the medication is less critical. . **RIGHT ROUTE** • The route means how and where the medication goes into the body. • Most medication is taken into the mouth and swallowed, but others enter the body through the skin, rectum, vagina, eyes, ears, nose, and lungs, through a g-tube or by injection. • The most common way (or route) for medications to enter the body is by mouth				

Sl. No	Behavioral Objective	Content	Time	Teacher's Activity	Learner Activity	A.V. Aids
		RIGHT DOCUMENTATION • Each time a medication is administered, it must be documented. • The documentation of medication administration must be done at the time that give the medication. • It must complete all of the documentation that is required on the medication log. • Documentation should be done in blue or black ink. • No pencil or white out can be used. • Never cross out or write over documentation. . • All documentation must be done at the time that the medication is administered. **RIGHT TO KNOW:** Patients have the right to know about the medication he or she is being given. **RIGHT TO REFUSE:** the patient has to the right to refuse treatment, but must be notified of the risks of their actions as well as the doctor should be notified. **RIGHT REASON** Confirm the rationale for the medication prescribed.patient history,reason for taking medications.reason for long term use. **RIGHT RESPONSE** Make sure that the drug leads to the desire effects.				

Sl. No	Behavioral Objective	Content			Time	Teacher's Activity	Learner Activity	A.V. Aids
	Mention the route of drug administration	**ROUTE OF ADMINISTRATION**			2mts	explaining	listening	LCD
		Route	meaning	examples				
		oral route:	swallowed by mouth as a pill, liquid, tablet or lozenge	Activated charcoal				
		rectal route:	suppository inserted into the rectum	diazepam				
		intravenous route:	injected into vein with a syringe or into intravenous (IV) line	Furosemide				
		infusion:	injected into a vein with an IV line and slowly dripped in over time	Ringer lactate				
		intramuscular route:	injected into muscle through skin with a syringe	Glucagon				
		topical route:	applied to skin	Ointment				
		enteric:	applied to skin delivered directly into the stomach with a G-tube or J-tube	Activated charcoal				
		nasal:	sprays or pumps that deliver drug into the nose	Midazolam				
		inhaled:	inhaled through a tube or mask (e.g. lung medications)	Albuteral				
		otic:	drops into the ear	levofloxacin				
		ophthalmic:	drops, gel or ointment for the eye	Betaxolol opthalmic				
		sublingual:	under the tongue	Nitroglycerine				

Sl. No	Behavioral Objective	Content			Time	Teacher's Activity	Learner Activity	A.V. Aids
		buccal:	held inside the cheek	Glucose				
		transdermal	a patch on the skin	Nitroglycerine				
		subcutaneous:	injected just under the skin	epinephrine				
		endotracheal intradermal	via ET tube within the dermal layer of skin	atropine mantoux				
		introsseous	into the marrow cavity of bone	furosemide				
		intrathecal	lumbar puncture	baclofen				
	List the control schedule of medications	**Drugs with a significant potential for abuse are classified into 5 categories or schedules:** Schedule I: highest potential for abuse Illicit drugs (Heroin, LSD, Marijuana) Schedule II: (Morphine, Dilaudid) Schedule III: (Vicodin, Meperidine) Schedule IV: (Valium, Xanax) Schedule V: lowest potential for abuse (OTC cough suppressant w/codeine)			1mt	explaining	listenng	whiteboard
	Enumerate the procedure of medication administration	MEDICATION BY MOUTH The oral route is probably the easiest and most often used route for administering medications. These medications have the potential to exert both local and systemic effects, and patients are usually able to take oral medications independently with very few problems. However, situations may arise that keep a patient from taking medications by this route. **Cutting and crushing tablets** When administering oral medications, it is sometimes necessary to give only a portion of a tablet. To break a scored tablet in half, use a cutting device to improve accuracy. If the tablet does not break evenly, discard it if your facility's policy allows it and cut another tablet. If it is a controlled substance, follow your facility's policy for			10 mts	explaining	listening	LCD

Sl. No	Behavioral Objective	Content	Time	Teacher's Activity	Learner Activity	A.V. Aids
		discarding these drugs. Keep in mind that it is difficult to confirm that you are giving the correct dose after you divide a tablet, so this is a practice best avoided if at all possible. **Buccal and sublingual medications** Sublingual medications are given under the tongue. Buccal medications are placed towards the back of the mouth between the upper or lower molars and the cheek. Both of these types of medication are absorbed through the mucous membranes of the mouth for rapid systemic effects. These medications are not to be chewed or swallowed, but instead should dissolve completely in the patient's mouth to assure reaching therapeutic blood levels. **Liquid medications** Holding the medication bottle with the label toward the palm of your hand and the medicine cup at eye level, pour the prescribed dose into the cup. To ensure accuracy, measure the medication at the base of the meniscus, not at the edges. After pouring the medication into the medicine cup, recap the container until the next time you administer it to this patient. Be sure do not touch the container with the inside of the cap. MEDICATION VIA A GASTRIC TUBE Patients with a gastric tube (nasogastric, nasointestinal, percutaneous endoscopic gastrostomy [PEG], or jejenostomy [J] tube) will often receive medication through this tube . Liquid medications should always be used when possible because absorption is better and less likely to cause blockage of the tube. Certain solid forms of medication can be crushed and mixed with water prior to administration MEDICATION ADMINISTERED RECTALLY The rectal route is not as reliable in absorption and distribution as oral and parenteral routes. The rectal route is, however, relatively safe because there is less potential for adverse effects Rectal medications are given for their local effects in the gastrointestinal system (e.g., laxatives) or their systemic effects (e.g., analgesics when oral route is contraindicated). Rectal medications are contraindicated after rectal or bowel surgery, with rectal bleeding or prolapse, and with low platelet counts				

Sl. No	Behavioral Objective	Content	Time	Teacher's Activity	Learner Activity	A.V. Aids
		MEDICATION ADMINISTER BY INTRAMUSCULAR INJECTIONS Intramuscular (IM) injections deposit medications into the muscle fascia, which has a rich blood supply, allowing medications to be absorbed faster through muscle fibres than they are through the subcutaneous route .The IM site is used for medications that require a quick absorption rate but also a reasonably prolonged action .Due to their rich blood supply, IM injection sites can absorb larger volumes of solution, which means a range of medications, such as sedatives, anti-emetics, hormonal therapies, analgesics, and immunizations, can be administered intramuscularly in the community and acute care setting. In addition, muscle tissue is less sensitive than subcutaneous tissue to irritating solutions and concentrated and viscous medications. **IM Injection Sites** Sites for intramuscular injections include the ventrogluteal, vastus lateralis, and the deltoid site. However, there is sufficient evidence that the ventrogluteal IM site is the preferred site whenever possible, and is an acceptable site for oily and irritating medications. The ventrogluteal site is free from blood vessels and nerves, and has the greatest thickness of muscle when compared to other sites A longer needle with a larger gauge is required to penetrate deep muscle tissue. The needle is inserted at a 90-degree angle perpendicular to the patient's body, or at as close to a 90-degree angle as possible. Use a quick, darting motion when inserting the needle. **Medication administer by intradermal and subcutaneous injection** Intradermal injections (ID) are injections administered into the dermis, just below the epidermis. The ID injection route has the longest absorption time of all parenteral routes. These types of injections are used for sensitivity tests, such as TB allergy, and local anesthesia tests. The advantage of these tests is that the body reaction is easy to visualize, and the degree of reaction can be assessed. The most common sites used are the inner surface of the forearm and the upper back, under the scapula. Choose an injection site that is free from lesions, rashes, moles, or scars, which may alter the visual inspection of the test results. Equipment used for ID injections is a tuberculin syringe calibrated in tenths and hundredths of a millilitre, and a 1/4 to 1/2 in., 26 or 27 gauge needle. The dosage of an ID injection is usually under 0.5 ml. The angle of administration for an ID injection is				

Sl. No	Behavioral Objective	Content	Time	Teacher's Activity	Learner Activity	A.V. Aids
		5 to 15 degrees. **Subcutaneous Injections** Subcutaneous (SC) injections are administered into the adipose tissue layer just below the epidermis and dermis. This tissue has few blood vessels, so drugs administered by this route have a slow, sustained rate of absorption. Sites for SC injections include the outer aspect of the upper arm, the abdomen (from below the costal margin to the iliac crest) within one inch of the belly button, anterior aspects of the thighs, upper back, and upper ventral gluteal area **MEDICATIONS ADMINISTER BY INTRAVENOUSLY** Intravenous is a term that means "into the vein". Intravenous medication administration occurs when a needle is inserted into a vein and medication is administered through that needle. The needle is usually placed in a vein near the elbow, the wrist, or on the back of the hand. Different sites can be used if necessary. There are two kinds of intravenous (IV) medication administration. An **IV "push"** is a one time, rapid injection of medication into the bloodstream. An **IV infusion** is a slow "drip" of medication into the vein over a set period of time, to deliver a constant amount of therapy. Complications medication error • fever • chillness • redness • pain • swelling				
	calculate the drug calculations for safe medication administration	**Converting Units** Most drugs are prescribed in milligram or microgram quantities. Occasionally, gram or nanogram quantities are also used. It is frequently necessary to convert units (e.g. from micrograms to milligrams), in order to calculate the correct dose to administer.	15mts	explaining	listening	pam phlet

Sl. No	Behavioral Objective	Content	Time	Teacher's Activity	Learner Activity	A.V. Aids
		Remember: **1 gram (g) = 1000 milligrams (mg)** **1 milligram (mg) = 1000 micrograms (mcg or □g)** **1 microgram (mcg or □g) = 1000 nanograms (ng)** **To change from grams to milligrams, multiply by 1000** I.e. move the decimal point 3 places to the right E.g. 1g = 1000mg 4.2g = 4200mg 0.07g = 70mg **To change milligrams to micrograms, multiply by 1000** I.e. move the decimal place 3 places to the right E.g. 1mg = 1000 micrograms 0.56mg = 560 micrograms 0.008mg = 8 micrograms **To change from milligrams to grams, divide by 1000** I.e. move the decimal point 3 places to the left e.g. 100 mg = 0.1g 62,000mg = 62g 35mg = 0.035g **To change from micrograms to milligrams, divide by 1000** i.e. move the decimal point 3 places to the left e.g. 2000micrograms = 2mg 375 micrograms = 0.375mg 62.5 micrograms = 0.0625mg				

Sl. No	Behavioral Objective	Content	Time	Teacher's Activity	Learner Activity	A.V. Aids
		Tablet/capsule calculations The following formula can be used as an aid to work out the number of tablets required: Number of tablets required = what you want /What you've got e.g. a prescription requires you to administer 150mg. You have a pot of 50mg tablets. How many tablets do you need? Number of tablets required = 150mg/50mg = 3 tablets. When using this formula you must make sure the units are the same **Liquid Medication Calculations** The following formula can be used for calculating the volume needed of oral liquid medication or injectable drugs. It is essential when using this formula that you use the same units for "what you want" and "what you've got". **Volume needed = What you want x Volume it's in** What you**'ve got** E.g. you need to give 300mg Paracetamol to a child. The suspension contains 120mg in 5ml. What volume of suspension do you give? Volume needed = 300mg/120mg x 5ml = 30/12 x 5ml = 75/6 = 12.5ml **Other units** Some drugs are expressed in other units, e.g. millimoles of potassium, or units of vheparin, etc. You can use the formula in exactly the same way provided "what you want" and "what you've got" are in the same units. E.g. 7500 units' heparin required from ampoules containing 5000units per ml. Volume needed = 7500 units/5000 units x 1ml = 75 /50 = 15/10 = 1.5ml				

Sl. No	Behavioral Objective	Content	Time	Teacher's Activity	Learner Activity	A.V. Aids
		Mg/kg calculations Many medication doses, particularly for children, are calculated on a mg/kg basis. The prescribing doctor should work this out and prescribe the dose required. Nurses should be able to check the prescribed dose. E.g. the dose required is 4mg/kg. The child weighs 5kg. I.e. the child needs 4mg of medicine for every kg body weight. So the dose needed is 4mg x 5 = 20mg. **Drip Rate Infusion Calculations** It is important that calculation of the rate of i.v. administration is accurate. For some drugs there are specific monograms and calculation aids available. However, it is useful to be able to perform these calculations from first principles and to do them step-by-step. E.g. At what rate (drops per minute) do you need to set the giving set to administer 1000ml of glucose 5% over 8 hours? **ml per hour** This is the total volume (1000ml) divided by the time (8 hours). 1000/8=125ml/hr **drops per minute** This is the number of drops per ml multiplied by the number of ml per minute The number of drops per ml depends on the fluid you are giving (the thicker the fluid the bigger the drops, so there are less drops in 1ml) and the type of administration set you are using. total no of fluid×15/total no of hours×60=drops/mt **Percentage Calculations** Drug concentration may also be measured as % (w/v). **% Means the number of grams dissolved in 100ml of solution** **I.e. grams per 100ml.**				

Sl. No	Behavioral Objective	Content	Time	Teacher's Activity	Learner Activity	A.V. Aids
		E.g. Glucose 5% means that 5 grams of glucose is dissolved in 100ml of fluid. a patient is prescribed 20g of glucose to be given as Glucose 50% injection. What volume (ml) do you give? Volume needed = what you want x what it is in What you've got 50% glucose contains 50g in 100ml Volume needed = 20/50 x 100ml = 20 x 2 = 40ml **Microgram/kg/min calculations** E.g. a woman weighing 40kg needs Dobutamine at 5mcg/kg/minute. The stock solution, which has been prepared, contains 500mg in 500ml of glucose 5%.What is the required rate of administration in ml per hour? **Step 1 - micrograms per minute** The patient needs 5 micrograms per minute for every kg body weight. Dose required = 5 x 40 = 200 micrograms/minute **Step 2 - micrograms per hour** Multiply by 60 to convert minutes to hours Dose required = 200 x 60 = 12,000 micrograms per hour **Step 3 – mg per hour** Divide by 1000 to convert micrograms to mg Dose required = 12,000/1000 = 12 mg/hr **Step 4 – ml per hour** Volume required (ml/hr) = what you want (mg/hr)/ What you've got (mg) x Volume it's in (ml) ml /hour = 12 mg/hr/500mg x 500ml = **12 ml/hr**				